



**Open Schooling for Secondary & Higher Secondary Education:
Costs and Effectiveness in India and Namibia**

Greville Rumble and Badri N Koul

© Commonwealth of Learning, 2007

Commonwealth of Learning (COL)
1055 West Hastings Street, Suite 1200
Vancouver, BC V6E 2E9
Canada

INDEX

LIST OF CHARTS, FIGURES AND TABLES.....	v
ABBREVIATIONS AND ACRONYMS	ix
ACKNOWLEDGEMENTS	xiii
REPORT LIMITATIONS.....	xv
EXECUTIVE SUMMARY	1
1 INTRODUCTION: BACKGROUND, OBJECTIVES AND CONDUCT OF RESEARCH.....	5
2 THE DEVELOPMENT OF OPEN SCHOOLING	9
2.1 Open Schooling: a definition.....	9
2.2 Development of Open Schooling	10
2.2.1 <i>ODL and non-traditional schooling</i>	12
2.2.2 <i>The introduction of technology</i>	13
2.2.3 <i>Meeting the need for secondary education</i>	14
2.3 Effectiveness of Open Schooling and its outcomes	14
2.3.1 <i>Measuring gains and benefits</i>	15
2.4 Costs of Open Schooling.....	18
2.4.1 <i>The Efficiency Ratio</i>	18
2.4.2 <i>Cost structure of ODL</i>	25
2.4.3 <i>Factors affecting costs</i>	27
2.4.4 <i>ICT costs</i>	29
2.5 International cost comparisons	30
2.6 Conclusions	30
3 ECONOMY AND EDUCATION IN INDIA	33
3.1 Introduction	33
3.1.1 <i>Financial challenges of universalising education</i>	34
3.2 Demographic factors and secondary education in India.....	34
3.2.1 <i>Large numbers, insufficient funding</i>	39
3.3 Structure of the Indian education system	39
3.3.1 <i>Introduction</i>	39
3.3.2 <i>Education in the Republic of India (the first 50 years)</i>	40
3.3.3 <i>Outcomes of over 50 years of educational re-engineering</i>	43
3.3.4 <i>Primary and secondary levels of education</i>	44
3.3.5 <i>Links with higher education</i>	47
3.3.6 <i>Open and distance education initiatives</i>	47
3.3.7 <i>Present challenges for secondary education in India</i>	48
3.4 Secondary schooling and the India labour market	50
3.4.1 <i>Introduction</i>	50

3.4.2	<i>Cost-benefits of education in India</i>	52
3.5	Cost-benefits of the Secondary Education: the Indian case	56
3.5.1	<i>The multiple roles of education.....</i>	58
3.5.2	<i>The impact of lower levels of education.....</i>	59
4	OPEN SCHOOLING IN INDIA: THE NATIONAL INSTITUTE OF OPEN SCHOOLING, NEW DELHI.....	61
4.1	The context of Open Schooling in India	61
4.1.1	<i>Need for Open Schooling in India</i>	61
4.1.2	<i>Policy prescriptions and commitments for secondary ODL operations.</i>	62
4.1.3	<i>Open Schooling as an alternative schooling system</i>	66
4.2	Place and role of ODL and NIOS	67
4.2.1	<i>NIOS becomes an apex body.....</i>	68
4.2.2	<i>Functions of NIOS</i>	69
4.2.3	<i>Secondary level courses and subjects offered by NIOS</i>	69
4.2.4	<i>Vocational courses offered by NIOS</i>	70
4.2.5	<i>Expansion of vocational courses.....</i>	74
4.2.6	<i>Livelihood, productivity and development</i>	74
4.2.7	<i>NIOS learner profile</i>	75
4.3	Description of the NIOS system	78
4.3.1	<i>Management and organisational structure</i>	78
4.3.2	<i>Preparation of study materials</i>	80
4.3.3	<i>Course delivery</i>	82
4.3.4	<i>Student support services</i>	83
4.3.5	<i>Learner assessment and certification</i>	84
4.3.6	<i>Quality assurance.....</i>	85
4.4	Comparative Effectiveness of NIOS	89
4.4.1	<i>Secondary education initiatives of the Government of India</i>	90
4.4.2	<i>NIOS and the issues of access and equity</i>	91
4.4.3	<i>Comparative effectiveness/performance of NIOS, KV s and JNVs</i>	95
4.4.4	<i>Performance of NIOS students.....</i>	96
4.4.5	<i>Effectiveness of NIOS: position in the national profile</i>	102
4.5	Cost-efficiency of NIOS	105
4.5.1	<i>The First Cost Study: Open School (1982-86)</i>	105
4.5.2	<i>The Second Cost Study: National Open School (1990-96)</i>	110
4.5.3	<i>The Third Cost Study: National Institute of Open Schooling (2005-2006)</i>	111
4.5.4	<i>Computation of the cost-efficiency of NIOS</i>	113
4.5.5	<i>The approach adopted for computation in this study.....</i>	114
4.5.6	<i>Basic facts that inform and guide the present cost computation.....</i>	115
4.5.7	<i>Cost-efficiency of NIOS: the present study</i>	117
4.5.8	<i>Costs compared to two conventional day schooling systems</i>	126
4.5.9	<i>Private cost of education at NIOS</i>	129
4.5.10	<i>Conclusions on costs</i>	133

5	ECONOMY AND EDUCATION IN NAMIBIA	135
5.1	Introduction	135
5.2	Demographic factors	135
5.2.1	<i>Education levels</i>	138
5.2.2	<i>Sources of income.....</i>	138
5.2.3	<i>Access to technology</i>	139
5.2.4	<i>Proximity to education</i>	139
5.2.5	<i>Hostel accommodations</i>	140
5.2.6	<i>Household income.....</i>	141
5.2.7	<i>Spending on education</i>	144
5.3	Structure of the Namibian education system	146
5.3.1	<i>Education challenges</i>	147
5.3.2	<i>Improving efficiency in education</i>	148
5.3.3	<i>Potential of distance education recognised.....</i>	149
5.3.4	<i>School enrolments</i>	150
5.3.5	<i>Progression through the formal education system.....</i>	152
5.3.6	<i>Funding of schools</i>	158
5.3.7	<i>Primary and secondary education provision</i>	159
5.3.8	<i>Implications of automatic promotions.....</i>	159
5.3.9	<i>NAMCOL's approach</i>	160
5.3.10	<i>Senior secondary routes</i>	161
5.4	Secondary schooling within the context of labour market	164
5.4.1	<i>Weaknesses in the education system</i>	165
5.5	Cost-benefits of education.....	166
6	OPEN SCHOOLING IN NAMIBIA: THE NAMIBIAN COLLEGE OF OPEN LEARNING	171
6.1	Structure of NAMCOL.....	171
6.2	The origins and purpose of NAMCOL.....	173
6.2.1	<i>NAMCOL is established</i>	175
6.3	The development of NAMCOL's pedagogic system	177
6.4	NAMCOL's learners	178
6.5	NAMCOL's Curriculum	183
6.6	Course materials development, production and distribution	185
6.7	Learner admission, teaching, assessment, and support	187
6.7.1	<i>Regional structure</i>	188
6.7.2	<i>Tutor recruitment and training.....</i>	189
6.7.3	<i>Student assignments</i>	190
6.7.4	<i>A higher drop-out rate.....</i>	191
6.8	Examinations and comparative performance.....	193
6.8.1	<i>Analysis of underachievement.....</i>	199
6.8.2	<i>Strategies for improving student performance</i>	201
6.9	Destination of NAMCOL learners	203
6.10	Quality assurance	206
6.10.1	<i>Process of accountability</i>	207

6.11	Unanswered Questions	209
6.12	Costs	210
	<i>6.12.1 Activity-based costing</i>	<i>211</i>
	<i>6.12.2 Measuring student loads</i>	<i>212</i>
	<i>6.12.3 Cost calculation challenges</i>	<i>213</i>
	<i>6.12.4 Government funding.....</i>	<i>214</i>
6.13	Dr. Marope's 2005 assessment of NAMCOL	220
	<i>6.13.1 Commentary on Dr. Marope's report</i>	<i>221</i>
6.14	Some Conclusions	231
7	CONCLUSIONS AND POLICY ADVICE.....	233
7.1	Why bother with open schooling at secondary level?	233
	<i>7.1.1 The implications of not meeting demand.....</i>	<i>233</i>
7.2	Defining "open schooling" and "open schools"	233
	<i>7.2.1 A broader definition of Open Schooling.....</i>	<i>234</i>
	<i>7.2.2 An alternative or a complement to formal education.....</i>	<i>235</i>
7.3	Using technology in the classroom	236
7.4	Can technology be used to solve the schooling crisis at secondary level?	237
7.5	Our results	238
	<i>7.5.1 Population and economy.....</i>	<i>238</i>
	<i>7.5.2 Comparative national educational data.....</i>	<i>239</i>
	<i>7.5.3 Origins of open schools in India and Namibia.....</i>	<i>241</i>
	<i>7.5.4 NAMCOL as a Complementary system to the Formal system</i>	<i>242</i>
	<i>7.5.5 NIOS as an alternative to formal schooling</i>	<i>243</i>
	<i>7.5.6 Are the open schools doing enough?.....</i>	<i>244</i>
	<i>7.5.7 Relative Effectiveness Ratio</i>	<i>246</i>
	<i>7.5.8 How has studying in an open school helped students?</i>	<i>248</i>
	<i>7.5.9 Relative Efficiency Ratio</i>	<i>249</i>
	<i>7.5.10 How do the two open schools we have examined in this study measure up against these criteria for low cost model?</i>	<i>253</i>
	<i>7.5.11 Why should we have confidence in open schools?</i>	<i>256</i>
7.6	Policy advice	256
	<i>7.6.1 Sustainability.....</i>	<i>257</i>
	<i>7.6.2 Quality assurance.....</i>	<i>258</i>
	<i>7.6.3 Access and equity</i>	<i>258</i>
	APPENDIX 1: Professor Koul's Programme	261
	APPENDIX 2: Professor Rumble's Programme	263

LIST OF CHARTS AND TABLES

Charts

Chart 5.1	Population of Namibia, mid-2005 estimates, by age and sex.....	137
Chart 6.1	NAMCOL's emergent organisational structure	172

Tables

Table 1.1	World Bank Key Development Data and Statistics	5
Table 1.2	Key comparative statistics, NIOS and NAMCOL	6
Table 2.1	Student success at schools level: comparative performance of distance and conventional systems	16
Table 2.2	Comparative costs per student of distance and traditional education systems	21
Table 2.3	Comparative costs per graduate in distance and traditional systems	24
Table 3.1	Population of India as per Census 2001	35
Table 3.2	Estimated child population as on 30 September 2002	36
Table 3.3	Gross Enrolment Ratios at the primary level	36
Table 3.4	Number of schools and the stages of education	37
Table 3.5	Enrolment in Classes XI and XII (including degree colleges)	38
Table 3.6	Present structure of the Indian educational system	44
Table 3.7	Educational pattern in States/Union Territories	45
Table 3.8	Progress made during 1950-2000	48
Table 3.9	Coverage within the 6-24 age group	49
Table 3.10	Work participation and the structure of Indian labour force— 1972/3-1993/4.....	52
Table 3.11	Trends in the returns (per cent) to education in India—1983-1993/4	53
Table 3.12	Earning differences within and across the various groups of population.....	55
Table 3.13	Studies on private rates of return in India	57
Table 4.1	Secondary and senior secondary subjects available at NIOS	70
Table 4.2	Enrolment in the NIOS vocational courses	71
Table 4.3	Enrolment (2005-06) by region in vocational courses	71
Table 4.4	Enrolment by course in vocational courses (2005-06)	73
Table 4.5	Enrolment by gender—2001 to 2006	76
Table 4.6	Enrolment by student category—2004 to 2006.....	76
Table 4.7	Enrolment by age—2004 to 2006	77
Table 4.8	Traditional and Open Schooling: transactional differences	82
Table 4.9	Fee structure of KV s (INR per month).....	90
Table 4.10	Enrolment trend since 1990-91	92
Table 4.11	Enrolment by region/state (an illustration)	93
Table 4.12	NIOS fee structure	94
Table 4.13	Comparative performance (Classes X and XII): KV s, JNVs and 'Other Schools' affiliated with the Central Board of Secondary Education (CBSE)	95
Table 4.14	NIOS examination results: April 2006	96
Table 4.15	Results by region (April 2006).....	97
Table 4.16	Profile of examination results: 1991-2006	98
Table 4.17	Pass Percentage at the secondary level by subject	99
Table 4.18	Pass Percentage at the senior secondary level by subject	100
Table 4.19	Corrected NIOS performance profile (a sample based on limited data)	101
Table 4.20	National profile of secondary and senior secondary examination results (2004-05)102	
Table 4.21	Effectiveness/performance of NIOS: place in the national profile	104
Table 4.22	Institutional profiles of institutions involved in comparison	106
Table 4.23	Comparative Average Cost (INR per student per annum)	108
Table 4.24	Relative cost-efficiency of the institutions compared	109

Table 4.25	Cost comparison: NOS and other types of schooling (1990-91).....	110
Table 4.26	Comparative costs per student at JNVs, KVAs and NIOS	111
Table 4.27	NIOS enrolment and apportioning factors	117
Table 4.28	Abstract of NIOS income and expenditure: actuals (INR millions).....	118
Table 4.29	Abstract of NIOS plan expenditure: actuals (INR millions)	119
Table 4.30	NIOS expenditure for 2002-07: a reconstruction (INR):	121
Table 4.31	Expenditure at the Kendriya Vidyalayas—2002-06 (INR millions).....	127
Table 4.32	Cost per student: Emmanuel Mission Secondary School, Bhilwara, Rajasthan (INR)	128
Table 4.33	Comparative costs per secondary student per course: NIOS, KVAs and EMSS (INR)	128
Table 4.34	Enrolment by subject 2004-07 (an abstract).....	130
Table 4.35	Private cost per student per subject including examination costs (NIOS secondary level)	131
Table 4.36	Private cost per student per subject including examination costs (NIOS senior secondary level).....	132
Table 4.37	Private cost per student per course excluding examination costs: NIOS, KVAs and EMSS compared	133
Table 5.1	2005 Mid-year population estimate by age and sex ('000s), Namibia.....	136
Table 5.2	Population Dependency Ratio, 2006	136
Table 5.3	School access to electricity and telephones, 2005.....	139
Table 5.4	Primary and secondary education hostel accommodation and hostel costs, 2005-2006.....	141
Table 5.5	Parental contribution to hostel costs, 2005-2006	141
Table 5.6	Annual consumption by highest level of educational attainment of the head of the household	143
Table 5.7	Parental contributions towards School Development Funds (NAD), 2004 Public Expenditure Tracking Survey data	145
Table 5.8	Enrolments in the formal school system, 1999-2006	151
Table 5.9	Proportion of female enrolments, 1999- 2005.....	151
Table 5.10	Formal system secondary school population and NAMCOL student-courses by level, by national regions grouped into NAMCOL regions, 2003-2005; and NAMCOL student-courses by level and by NAMCOL regions, 2006.....	154
Table 5.11	Numbers of new entrants, repeaters and re-entrants, Grades 1-12 (2005); school leavers 2004; promotion, repetition and school-leaving rates, Grades 1-11 (2004 to 2005 transition); and survival rates to Grades 2 to 12 (2004)	156
Table 5.12	Rates of enrolment of 6 to 18 year olds, by grade, 2005	157
Table 5.13	Net Enrolment Ratios (NER) and Gross Enrolment Ratios (GER), 2000-2005 ...	157
Table 5.14	Number of public and private schools in Namibia, 2005	158
Table 5.15	Proportion of NAMCOL students taking the JSC and IGCSE for the first time, or for re-sit purposes, 1999, 2003, 2007.....	161
Table 5.16	Potential eligibility of Grade 12 graduates who entered Grade 11 with the minimum qualifications.....	163
Table 5.17	Potential eligibility of Grade 12 graduates who entered Grade 11 with 27 points.	163
Table 5.18	Potential eligibility of Grade 12 graduates who entered Grade 11 with Grades C, D, E and F in the JSCE	163
Table 5.19	Hourly wages (in NAD) by educational level, 2003	167
Table 5.20	Returns to education expressed as an index with no school equal 1.....	168
Table 5.21	Private and social IRR for different levels of education	169
Table 6.1	NAMCOL staffing	173
Table 6.2	Number of full-time staff per learner	173

Table 6.3	Continuing and distance education provision in Namibia, 1991-1998	175
Table 6.4	Number of students enrolled on NAMCOL professional programmes, 03-06	177
Table 6.5	Number of NAMCOL learners by level and by mode of study, 1999-2006	179
Table 6.6	NAMCOL students: average number of subject registrations by level, 99-06	180
Table 6.7	Number of students by subject load, 2004 and 2005	180
Table 6.8	NAMCOL's subject enrolments, by open learning mode	181
Table 6.9	Proportion of NAMCOL students who are female	181
Table 6.10	Age of NAMCOL students	182
Table 6.11	Percentage of NAMCOL students not doing any paid work	182
Table 6.12	Drop-out among NAMCOL JSC learners, 1999-2005	192
Table 6.13	Drop-out among NAMCOL IGCSE learners, 2003-2005	193
Table 6.14	IGCSE candidates, 1998-2005, by choice of examination sitting	193
Table 6.15	Cumulative percentage achieving given grades at JSC, full- and part-time candidates, 2000 – 2006	195
Table 6.16	JSC part-time results, 1999-2002: all part-time students, NAMCOL part-time by mode, and part-time private students	196
Table 6.17	Cumulative percentage achieving given grades at IGCSE, full- and part-time candidates, 2000 – 2006	197
Table 6.18	Junior Secondary Certificate examinations: overall and key subject results by grade, full- and part-time candidates, Oct/Nov 2006 examinations	198
Table 6.19	International General Certificate of Secondary Education Examinations: overall and key subject results by grade, full- and part-time candidates, Oct/Nov 2006 examinations	199
Table 6.20	Comparison of full-time versus part-time results using the Effectiveness Ratio, November 2005 and November 2006 examinations	200
Table 6.21	Cost of increasing tutorial hours per week	202
Table 6.22	Expenditure on secondary education, 2001/02 to 2005/06	211
Table 6.23	NAMCOL 2007-2008 Budget by programmes/activities	212
Table 6.24	Cost per subject enrolee, formal secondary school system, per 07-08 budget	215
Table 6.25	Average cost per student, formal secondary education system, per 2007-2008 budget	215
Table 6.26	Unit cost per subject enrolee, formal secondary education system, based on 2007-2008 budget	216
Table 6.27	NAMCOL unit costs per subject enrolee and per student, 2007-2008 budget estimate, assuming all non-ASEP net costs are charged against the ASEP programme (Scenario 1)	217
Table 6.28	NAMCOL unit costs per subject enrolee and per student, 2007-2008 budget estimate, assuming only "other" business-sustaining net costs are charged against the ASEP programme (Scenario 2)	218
Table 6.29	Unit costs per subject-enrolee and per student, formal secondary school system and NAMCOL, based on 2007-2008 budget	219
Table 7.1	Comparative educational statistics for India and Namibia	239
Table 7.2	Distribution of formal system school population and NAMCOL student courses by NAMCOL region, 2005	243
Table 7.3	Comparative Effectiveness Ratio for NIOS against various comparator Boards of Education, 2004-2005 results	248
Table 7.4	Budgeted 2007/08 unit cost calculations, Namibian formal secondary education system and NAMCOL, and Efficiency Ratio	250

Table 7.5	Relative cost-efficiency of NIOS using INR cost per student course data when compared with Kendriya Vidyalayas, 2002/03 to 2005/06, and with the Emmanuel Mission Secondary School in Bhilwara, Rajasthan, 2006/07.....	252
Table 7.6	Major factors affecting the costs in Open Schooling	252
Table 7.7	Academic work to produce one hour of student learning.....	255

ABBREVIATIONS AND ACRONYMS

#	number of
<	less than
§	section
ACHS	Air Correspondence High School (Korea)
ACPO	Acción Cultural Popular, Colombia
AIs	Accredited Institutions* <i>(Accredited by NIOS to provide support services for academic subjects)</i>
APCI	adjusted per capita income
APEC	Acción Pro-Educación y Cultura (Centros APEC, Dominican Republic)
ASEP	Alternative Secondary Education Programme, NAMCOL
AVIs	Accredit Vocational Institutions* <i>(Accredit by NIOS to provide support services for vocational courses)</i>
BBC	British Broadcasting Corporation
BETD	Basic Education Teacher Diploma (Namibia)
CABE	Central Advisory Board of Education
CBLC	Computer-Based Learning Centre (NAMCOL)
CBSE	Central Board of Secondary Education*
CD-ROM	Compact Disc – Read Only Memory
CED	Certificate in Education for Development (NAMCOL)
CISCE	Council for the Indian School Certificate Examination
CLGS	Certificate in Local Government Studies (NAMCOL)
COL	Commonwealth of Learning
Cr\$	cruzeiro (Brazilian currency between 1952 and 1994)
CTEs	Colleges of Teacher Education
CYP	Commonwealth Diploma in Youth in Development (NAMCOL)
DASs	Delhi Administration Schools
DEC	Distance Education Council
DFID	Department for International Development
DIETs	District Institutes of Education and Training
DNEA	Directorate of National Examinations and Assessment (Namibia)
DPEP	District Primary Education Programme
DTP	Desk-Top Publishing
EFA	Education For All
Effect. Ratio	Effectiveness Ratio
EMIS	Educational Management Information System (MOE, Namibia)
ETSIP	Education and Training Sector Improvement Programme, Namibia
ETV	Educational Television
excl.	excluding
FTE(s)	Full-Time Equivalent(s) – measure of student and staff numbers
GBP	Great Britain Pound
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
GNI	Gross National Income
GNP	Gross National Product
govt.	government
GRPOS	Grants-in-aid for Research Projects in Open Schooling

HDABET	Higher Diploma in Adult Basic Education for Training (UNISA programme franchised to NAMCOL)
HE	Higher Education
HIGCSE	Higher International General Certificate of Secondary Education (Namibia)
IASEs	Institutes of Advanced Studies in Education
ICTs	Information and Communications Technologies
IGCSE	International General Certificate of Secondary Education (Namibia)
IGNOU	Indira Gandhi National Open University
IIMs	Indian Institutes of Management
IITs	Indian Institutes of Technology
INR	Indian Rupees (<i>Current exchange rate: 1 US\$ = Appx. INR 40.00</i>)
IRDEB	Institut de Radio-Educative de Bahia, Brazil
IRFOL	International Research Foundation for Open Learning (Cambridge, UK)
ISCED	International Standard Classification of Education
ISP	Internet Service Provider
JNVs	Jawahar Navodaya Vidyalayas <i>(Apex Executive Body of Central Schools)</i>
JSC	Junior Secondary Certificate, Namibia
JSCE	Junior Secondary Certificate Examination, Namibia
JSE	Junior Secondary Education, Namibia
K£	Kenyan pound (currency)
km(s).	Kilometre(s)
KVs	Kendriya Vidyalayas (Central Schools)
KVS	Kendriya Vidyalaya Sangathan
MDGs	Millennium Development Goals
MHRD	Ministry of Human Resource Development
MOE	Ministry of Education, Namibia
MWK	Malawi Kwacha (currency)
N\$	Namibian Dollar
NAD	Namibian Dollar
NAMCOL	Namibian College of Open Learning
NBC	Namibian Broadcasting Corporation
NCERT	National Council of Educational Research and Training
NCOS	National Consortium for Open Schooling
NEACB	National Examinations, Assessment and Certification Board
NER	Net Enrolment Rate
NEU	Namibian Extension Unit
NFE	Non-Formal Education
NGOs	Non-Government Organizations
NIEPA	National Institute of Educational Planning and Administration <i>(Now 'National University of Educational Planning and Administration')</i>
NIOS	National Institute of Open Schooling
NOLNet	Namibian Open Learning Network Trust
NOS	National Open School
NOSS	National Open School Society
NPE	National Policy on Education 1986/1992
NSC	National School Certificate (Namibia)
NSS	National Sample Survey (of India)
NSSC	Namibia Senior Secondary Certificate
NSSCH	Namibia Senior Secondary Certificate (Higher Level)
NSSCO	Namibia Senior Secondary Curriculum (Ordinary Level)

NVS	Navodaya Vidyalaya Samiti (<i>Apex Executive Body of Jawahar Navodaya Schools</i>)
OBCs	Other Backward Classes
OBE	Open Basic Education
ODL	Open Distance Learning
OLS	Open Learning System
OS	Open School
OSAC	Open Schooling Association of the Commonwealth
OSSCC	Open Schooling State Coordination Committees
para(s).	paragraph(s)
p.	page
pp	pages
PETS	Public Expenditure Tracking Survey (Namibia)
PIRR	Private Internal Rate of Return
PMD	Programmes and Materials Development Division, NAMCOL
POA	Programme of Action (related to NPE-1986 as revised in 1992)
pts	points
RAC	Research Advisory Committee (of NIOS)
R&D	Research and Development
RCAC	Regional Centre Advisory Committee (of NIOS)
RCs	Regional Centres
RD\$	Dominican Republic peso (currency)
SCs	Scheduled Castes
SCERTs	State Councils for Educational Research and Training
SDF	School Development Fund (Namibia)
SIRR	Social Internal Rate of Return
SOSs	State Open Schools
sq.	square
SSA	Sarva Shiksha Abhyan (Education for All Campaign)
SSLC	Secondary School Leaving Certificate
STs	Scheduled Tribes
SWAPO	South West Africa People's Organisation
UAE	United Arab Emirates
UGC	University Grants Commission
UK	United Kingdom
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNISA	University of South Africa
UPE	Universal Primary Education
USA	United States of America
USD	United States Dollar
VTC	Vocational Training Centre, Namibia
VVN	Vidyalaya Vikas Nidhi (School Development Fund of KVs)
YCMOU	Yashwantrao Chavan Maharashtra Open University, India
ZSSs	Zila Saksharta Samities (District Literacy Committees)

ACKNOWLEDGEMENTS

The authors would like to thank the following people for their help during the conduct of this study:

In India, my deepest obligation of gratitude is to Shri M. C. Pant, Chairman of NIOS, for putting together a team of senior staff members of NIOS to assist me in procuring the data required from NIOS, New Delhi; Kendriya Vidyalaya Sangathan, New Delhi; Council of Boards of School Education in India, New Delhi; the Ministry of Human Resource Development, Government of India, New Delhi; and other sources. This arrangement was necessitated because of my health conditions and I must record my special thanks to all the team members for the support I received from them—I would not have been to work without this support.

I would also like to thank Shri M. C. Pant for his effort in obtaining the data pertaining to country-wide examination results (learner performance at the secondary level) from the Council of Boards of School Education in India, New Delhi; Dr. J. D. Sharma, Senior Executive Officer, NIOS, and Professor Puran Chand, Senior Executive Officer, NIOS, for their insightful comments on the drafts of the various sections of the report and the explanations/answers they put forth in response to my queries; Shri S. K. Anand, Deputy Director, Accounts, NIOS, for the financial data he provided for me to study and work on, the time and space he allowed me to listen to and answer my questions, explain the intricacies of the NIOS financial records and administrative procedures and the arrangements he made for me to interact with some of the staff of the Administration (Accounts) Department for further elaborations and explanations; Dr. Oum Prakash Sharma, Assistant Director, Academic, NIOS, for the time and effort he put in to put together various studies and documents in connection with quality assurance activities, systemic research and student support services of NIOS, with unfailing patience and courtesy; Shri S. K. Prasad, System Analyst & Programmer, NIOS, for his unfailing and continued support over the entire project period in collecting the data pertaining to examination results, enrolments and learner profiles from NIOS, New Delhi, Kendriya Vidyalaya Sangathan, New Delhi, the Ministry of Human Resource Development, Government of India, New Delhi, and other institutions; Dr. R. K. Arya, Joint Director, Media, NIOS, for his help in arranging the data and details of the media materials developed, produced and offered by NIOS; Dr. R. S. P. Singh, Assistant Director, Vocational Education, NIOS, for the insight he provided in relation to the Vocational Education Programmes being offered and planned for the future by NIOS; and Professor Harmesh Lal, Consultant, NIOS, for providing logistic support for and during the Project Team meetings and for providing other facilities such as transport for the project related meetings held from April to September, 2007, at NIOS Headquarters in New Delhi. I must also express my gratitude to Dr. Sushmita Mitra, Director (on leave), Department of Student Support Services, NIOS, for her comments on the draft Chapter 4 of this Study.

My thanks are also due for the other NIOS staff with whom I interacted and sought information and help from and those others who participated in facilitating the study of NIOS in one or the other way.

In Namibia special thanks must go to Mr. Heroldt Murangi, Director of NAMCOL, and his staff, for facilitating the study of NAMCOL itself, but also for providing an office base and transport during the study. It is sometimes dangerous to pick out particular individuals for special thanks but in this case I would like in particular to mention Mr. Jerry Beukes, Deputy Director Programme and Materials Development, NAMCOL, who answered my many queries with patience and good humour; Mr. Jan Nitschke, Manager, Research and Evaluation, at NAMCOL, who had accessed a vast amount of data and documentation that was ready on arrival in Namibia, and who provided the first line of support on a daily basis; Ms. Verena Van Wyk, the Director's

Private Secretary, who deserves special thanks for her support and unfailing help. However, my deepest obligation of gratitude is to Mrs. Petrina Kamati, Senior Manager, Finance and Administration, NAMCOL, who worked long hours of overtime to provide me with the financial data I needed to complete the report, and without whose help some of the report could never have been completed. Within the Ministry of Education, Mr. Beans Uazembua Ngatjizeko, Director, Department of Adult Education, was the principal point of contact. He made many of the appointments with Ministry staff. Mr. Justin Ellis, Under Secretary at the MOE, was courteous and ever helpful, and special thanks must go to him, and also to Mrs. Sandra van Zyl, Chief Higher Education Officer, Education and Training Sector Improvement Programme, for pointing the way to documentation and sources of help. Mr. Alfred Ilukena, Under Secretary, Formal Education, gave up his valuable time to provide further insights into issues bearing on the study. Dr. Heide Tavakovi, Financial Planner, Corporate Planning, saved hours of fruitless work. Mr. D. Koch, Senior Systems Analyst, Examinations Section, Directorate of National Examinations and Assessment, was extremely helpful in accessing data on examination results. All those who were interviewed and badgered for help gave of their time and expertise with unfailing patience and courtesy – and to all of them thanks is extended.

At the Commonwealth of Learning, Vancouver our thanks go to Mrs. Frances J. Ferreira, Education Specialist, Basic Education and Open Schooling, who directed and coordinated our study, and to Ms. Carol Walker, Programme Assistant, who provided basic support and backup and who smoothed our entry to various institutions in India and Namibia.

Greville Rumble
Badri N. Koul

REPORT LIMITATIONS

1. One of the major limitations we faced was the lack of information/data regarding the destinations of the NAMCOL and NIOS graduates.
2. NAMCOL and NIOS did not have data regarding those of their students who are employed (such as how many students learn and earn at the same time and how much do they earn?). This data is essential in order to work out the opportunity costs that are so important in cost studies.
3. There is a lack of data explaining what proportion of NAMCOL students have studied at the JSC and/or IGCSE/NSSCO levels before they joined NAMCOL, and what proportion of NAMCOL students are also enrolled in other private institutions at the same time. This information would provide better insight into student performance and how it could be improved.
4. The conventional Full-Time-Equivalent (FTE) system of computation to calculate the unit costs of various types or that of pass percentages is flawed. NIOS's enrolment data is based on head count; a more accurate measure would be subject-based enrolment data. In Namibia, NAMCOL students study the full two-year senior secondary curriculum in one year, which makes it difficult to calculate FTE.
5. The existing integrated system of budgeting and accounts being followed by NIOS does not allow for accuracy in cost analyses on rational grounds, though it fits well in the conventional accounting-design prescribed by the Government.
6. The Namibian education budget distinguishes between operational costs and development costs (capital expenditures such as buildings, furniture and equipment), but it does not identify the value of past capital investments. This means the budget take into account the capital cost savings that arise in distance education systems such as NAMCOL, and therefore underestimates the relative cost efficiency of such systems. Similarly, the line budget for secondary education does not include the cost of student hostels, which account for nine per cent of the education budget.
7. NIOS has no data related to the monitoring of its study centres at its Accredited Institutions. This makes it impossible to make any bold statements regarding the quality of operations or student support at these study centres.

EXECUTIVE SUMMARY

Recent progress towards the achievement of the second U.N. Millennium Development Goal, Universal Primary Education (UPE), means that many more children are completing primary education and looking for opportunities to enter secondary education. There is little likelihood that governments facing the challenges of meeting the UPE target will be able to meet a further challenge of providing vastly increased access to opportunities for secondary education.

Rapid expansion of secondary provision to meet frustrated demand from primary school leavers and the needs of young adults previously denied secondary education opportunities will likely require investment in approaches that are less tied to traditional methods of schooling.

It is within this context that this study has been conceived. "Open Schooling for Secondary and Higher Education" explores the provision of secondary level Open Schooling in India and Namibia, which are vastly different in their basic characteristics. The study examines on the National Institute of Open Schooling (NIOS) in India and the Namibian College of Open Learning (NAMCOL). The focus is on issues such as cost-benefit of the open school model, student profiles, how open schools complement the formal system, learner success, course development, open school management and quality assurance. The study was carried out by two experts in the field, Professor Badri N. Koul, who researched NIOS, and Professor Greville Rumble, who researched NAMCOL, between April and October 2007.

As defined by COL, Open Schooling involves "the physical separation of the school-level learner from the teacher, and the use of unconventional teaching methodologies, and information and communications technologies (ICTs) to bridge the separation and provide the education and training".

The use of technology both to facilitate and to overcome the separation of teacher and learner has a long history going back to perhaps as early as 1728 when in *The Boston Gazette*, Caleb Philips advertised weekly lessons in shorthand to be sent to those wishing to learn the art. Further developments in correspondence education took place in Europe, North America and the UK in the late 19th century. Around the same time, university extension movement encouraged the use of outreach programmes using correspondence methods, sometimes combined with face-to-face tutorials. Early open schools tended to arise from efforts to help individual out-of-school children pursue their studies, either because they could not get to a school, or because they were unable to stay in school.

In current times, with the primary education system producing large numbers of graduates whose plans to go on to secondary level are frustrated through a lack of provision, the expansion of Open Schooling at secondary level has been seen as a way forward. Open schools have been set up to offer both junior and senior secondary education to adolescents for whom there are no conventional school places, to out-of-school young people and to adults. These open schools have been successful in both bringing down the costs of education and educating out-of-school youths as well as adult learners.

With one-sixth of the world's population, India is the second most populous nation in the world. It is highly diverse in terms of geography, languages, culture and income. The physical infrastructure and the related additional human resources required for secondary education do not exist, nor can they be created overnight to meet the impending deluge once UPE is achieved (the latest forecast is 2010). Much of the burden for universalising education will have to be taken by the Central Government, which is raising funds and also adopting alternative modes of education

for the purpose. As earnings definitely increase with rises in educational levels for all in India, the need to provide access to education is clearly linked to the country's development goals.

India's National Open School (NOS) was established in 1989 to reach those who had dropped out of school or never been to school and who wished to study but were for a variety of reasons not studying in regular schools. Over the years, the role of NOS expanded beyond the provision of bridging courses, an alternative secondary/higher secondary curriculum and life-enhancing courses, to include from vocational education. Meanwhile, a number of State Open Schools were established, all with a similar pro-poor mandate to that of NOS. In 2002, NOS was re-mandated to act as the national apex body for open schooling, and re-designated The National Institute of Open Schooling (NIOS). NIOS is both a teaching, and an examining and accrediting organisation. There are currently close to 300,000 students enrolled in NIOS Accredited Institutions.

The Republic of Namibia has a population of approximately two million made up of 13 ethnic cultures and 16 language groups. Although Gross National Product (GNP) is relatively high, the country has inequalities in income that are among the highest in the world. Namibia has significant natural resources, but the potential for development is held back by a low skills base that hampers foreign investment. The country's Education and Training Sector Improvement Programme is aimed at improving the education and training system to support the achievement of development goals

The Namibian College of Open Learning (NAMCOL) was formally established in 1997 as a distance education college within the Ministry of Education. NAMCOL took on responsibility for Namibia's existing distance education programmes and the Namibian Extension Unit, which provided courses to Namibian refugees in Zambia and Angola, before its independence.

NAMCOL's role in the Namibian education system is to act as a safety net that "picks up" and helps a population roughly equivalent to 18.1 per cent of the conventional school population. Most students are seeking not to study for the first time at these levels but to improve their grades and hence their job prospects. NAMCOL exists to give them a second chance and to make good the deficiencies of the formal system. The curriculum it is offering and the target it is reaching are relatively restricted. As Namibia builds more traditional secondary schools, it's likely that NAMCOL's traditional market will begin to dry up, first at the junior and ultimately at the senior secondary schools level, which is why we endorse NAMCOL's search for new markets in which to deploy its expertise and its facilities.

While NAMCOL is essentially complementary to the formal system, NIOS can be described as offering an alternative system to formal schooling. The vast majority of NIOS's secondary school students are out-of-formal-school learners and school drop-outs, working adults, housewives, learners from disadvantaged sectors of society and learners living in remote areas of India. The scale of the demand for secondary education places in India means that NIOS and the various State Open Schools will continue to have a major role in the future. The addition of vocational educational opportunities alongside more academic school subjects must reflect an appropriate response to the needs of some learners, while the continuing emphasis on academic subjects is clearly important in generating potential entrants for the university sector.

Like NIOS, NAMCOL enjoys strong government support. Both institutions receive government grants. In the case of NIOS, Government grants declined progressively from 34 % of its income to meet only 10.01% of the NIOS expenses, (covering the period 2002-2007). The Central Government does not use any standard funding formula (i.e. @ per student or per subject

enrolment) to fund NIOS. Instead, plan-grants are given to NIOS on the basis of their budget estimates. Other than such developmental plans, the rest of the expenditure is expected to be met from NIOS' own earnings/resources. The overall conclusion is that at the secondary level of education in India, ODL operations such as NIOS are significantly less expensive than the conventional schooling systems.

In the Namibian case, funding is based on a formula “on the principle that the provision of secondary education via NAMCOL should not be more expensive than providing secondary education via formal education”. In 2007/2008 the formula will generate a Government subsidy of 63.9% towards operational costs in NAMCOL’s budget. The study confirms that economically NAMCOL is very efficient, in terms of its unit costs per student, in comparison with the formal system.

Although the part-time system (of which approximately 90% are from NAMCOL) never equals or surpasses the full-time system in effectiveness, in a number of subjects – and with one or two comparatively rather poor results (Biology and Economics IGCSE) – it approaches the full-time system in respect of the proportion of students gaining grades A to G (JSCE) or A to G (IGCSE examination). NIOS students perform well in comparison with the students taking other Boards' secondary education examinations, they do not perform as well at higher secondary level.

Like all distance education systems, the success of NAMCOL's pedagogic system rests on three key factors: the quality of its course materials, the quality of its student support sub-system and the quality of its logistics. The quality of its course materials is not in doubt; subject by subject, they are good to excellent. Logistically too the College performs well: the turnaround time on assignments is on a par with the best of correspondence systems. NAMCOL's management systems and its student support systems are well-designed and function well. Students are registered efficiently; the materials get out to them on time; assignments are handled expeditiously and tutor marking and performance is monitored. Yet if there is a question mark, it hangs over the effectiveness of the student support system and how it could be improved in order to ensure that a higher proportion of students achieve their aim of getting an A to C grade in the national examinations. One approach would be to simply increase the amount of face-to-face support per subject per week. This may well be an appropriate response, but arguably NAMCOL also needs to build a much more individually targeted support system that identifies those students who are struggling and targets help at them. Unlike the case of NIOS, examinations are not a competency of NAMCOL, but of the Directorate of National Examinations and Assessment.

NIOS has well-defined processes for curriculum development, and approval of courses and subjects are approved prior to the development of the materials by subject experts. Administrative and academic support is provided to the learners through the Accredited Institutes, which are selected against strict criteria. Activities that take place at these Institutes, including teaching and assignment marking, is monitored by academic facilitators attached to the Regional Centres. However, there is some doubt as to whether the monitoring processes at Accredited Institutes are adequate, and there is no current means of planning and reviewing a system-wide process of evaluation and quality assurance.

While open schools have not been without their problems, such as low status, under funding and poor results, there is strong evidence that open schools can effectively deliver secondary education to remote pupils that have never before had such opportunities. There is evidence that, organised in the right way and with an attention to cost reduction, open schools can be set up to reap the benefits of the economies of scale that distance education holds out as a possibility.

The study confirms that open schools can be either a complementary or alternative system to the conventional school system. As an alternative, open schools can reach new markets through an expanded curriculum.

Given the crisis in secondary education admissions, this study finds strong evidence to support further investment in understanding what it is that makes for success in Open Schooling and investment in the establishment of more open schools to face the challenges of frustrated demand that so many countries face. This will be of key importance as the world faces the challenges of the next three or four decades – of environmental change, population growth, and resource and energy supply. It will be difficult if not impossible to meet the demand and need for secondary education on the scale envisaged without resorting to Open Schooling approaches.

1 INTRODUCTION: BACKGROUND, OBJECTIVES AND CONDUCT OF RESEARCH

The *Millennium Declaration*, adopted by 189 governments at the United Nations Millennium Summit in 2000, committed nations and intergovernmental institutions to focus international economic and social cooperation on the achievement of eight Millennium Development Goals (MDGs) by 2015¹. The second of these goals – achieving Universal Primary Education (UPE) – commits governments to the target of ensuring that all boys and girls complete a full course of primary education. This goal is consistent with the Education For All (EFA) goal reaffirmed at the World Education Forum in Dakar, Senegal in April 2000, which committed the international community among other things to ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to and complete free and compulsory primary education². Although challenging, as UNESCO's Education for All (EFA) Global Monitoring report 2005 makes clear³, progress towards the achievement of UPE means that many more children are completing primary education and looking for opportunities to enter secondary education.

There is little likelihood that governments facing the challenges of meeting the UPE target by or shortly after the 2015 target date will be able to meet a further challenge of providing vastly increased access to opportunities for secondary education. Rapid expansion of secondary provision to meet frustrated demand from primary school leavers and the needs of young adults previously denied secondary education opportunities, is thus likely to require investment in approaches that are less tied to traditional methods of schooling.

It is within this context that the present study has been conceived. The study focuses on the provision of secondary level Open Schooling in two countries, India and Namibia that are vastly different in their basic characteristics (World Bank Key Development Data and Statistics):

Table 1.1: World Bank Key Development Data and Statistics

Country	India ⁴	Namibia ⁵
Date	2005	2005
GDP (current US\$) billions	785.5	6.1
GNI per capita, Atlas method, current US\$	720	2990
Life expectancy at birth, total (years)	63	47
Population, total, millions	1,094.6	2.0
Population growth (annual %)	1.4	1.1
School enrolment, primary (% net)	89.7	73.7
Surface area, (sq. km.) (thousands)	3,287.3	824.3

¹ United Nations Association: <http://www.unausa.org/site/pp.asp?c=fvKRI8MPJpF&b=640969>, accessed 19 April 2007.

² UNESCO: http://portal.unesco.org/education/en/ev.php-URL_ID=33163&URL_DO=DO_TOPIC&URL_SECTION=201.html, accessed 19 April 2007.

³ UNESCO, EFA Global Monitoring Report 2005, http://portal.unesco.org/education/en/ev.php-URL_ID=35939&URL_DO=DO_TOPIC&URL_SECTION=201.html, accessed 19 April 2007. See in particular Chapter 3.

⁴ World Bank Key Development Data and Statistics, accessed 19 April 2007:
<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20535285~menuPK:1192694~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>

⁵ World Bank Key Development Data and Statistics, accessed 19 April 2007:
<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20535285~menuPK:1192694~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>

In India, the study focuses on the National Institute of Open Schooling (NIOS), while in Namibia the focus is on the Namibian College of Open Learning (NAMCOL). Again, these are two very different institutions as the table below indicates.

Table 1.2: Key comparative statistics, NIOS and NAMCOL

Institution		NIOS	NAMCOL 2006
# secondary equivalency enrolments,	2003	Appx. 35,000,000	28,090
secondary equivalency enrolments as %age of total secondary enrolments in country		(321,754), i.e. 0.92%	18.0%
# staff on contracts of service (i.e. core staff)	2003-2006	HQs Sanctioned: 251	69
# staff on contracts for service (i.e. casual staff)		Guesstimate: 32,000 ⁺	1228

Notes:

1. The data regarding enrolment being presented here pertains to 2003. It is what could be authenticated on the basis of our own calculations (see *The secondary school age group* in Section 3.5).
2. If we consider the cumulative enrolment (not just the 2003 intake only, but all the students on rolls in 2003), we have to depend on approximations—the number would be something like 1.2 million, in which case the %age (row 2) would be 3.43.
3. The basis of the guesstimate:
 - i. At least 10 persons (including tutors, etc.) at each study centre at all the different types of AIs put together (AIs-1946, AVIs-999 and AAs-249 = 3194) = 3194 x 10 = 31,940.
 - ii. At least 4 persons at each Regional Centre = 12 x 4 = 48
 - iii. Academic facilitators (actual number) = 161
 - iv. Total = 32,149, i.e. approximately 32,000.

Institution	NIOS 2006-2007	NAMCOL 2006
# secondary equivalency enrolments	290983	28090
secondary equivalency enrolments as %age of total secondary enrolments in country		18.0%
# staff on contracts of service (i.e. core staff)	circa 250	69
# staff on contracts for service (i.e. casual staff)		1228

The aim of the study was to look at these two institutions in some detail and see whether any broad conclusions might be drawn about the nature and effectiveness of Open Schooling, with a view to informing policy development and further research.

The specific objectives of the study were:

1. To examine the relative cost efficiency, cost effectiveness and cost-benefit of the open school model as compared to the conventional school model in terms of unit cost, private and opportunity cost, public cost, capital / non-recurring cost and recurring/operational cost.

2. To understand the student profile in terms of age, gender, rural/urban distribution, socio-economic status and family background, and see whether this model caters to the same or different populations. (i.e. How does the profile of open school students compare with the student profile of the conventional schooling system?)
3. To explore how open schools can complement the formal system. Is the Open Schooling model best implemented as a parallel, supplementary or complementary system?
4. To investigate learner success in terms of student enrolment, completion/success rates, efficiency of time invested, further education, employment and productivity by addressing such questions as:
 - What is the completion rate?
 - How do Open Schooling graduates perform in the labour market?
 - How do these compare to conventional approaches to similar learners?
 - What is the relative cost effectiveness and cost-benefits of the two systems?
5. To examine the nature and type of courses (academic/vocational) offered by the Open Schooling system and their linkage with higher learning and livelihood/productivity and development.
6. To study the processes of the course development, learner support and learner assessment (both formative and summative assessment) systems used in the Open Schooling approach.
7. To study the planning and management system including the modalities of monitoring and evaluation employed in the Open Schooling system.
8. In relation to points 5, 6 and 7, to study the quality assurance mechanisms in place.

Professor Badri N. Koul, who focused on NIOS, and Professor Greville Rumble, who focused on NAMCOL, carried out the studies between April 2007 and October 2007. Appendix 1 provides information on Professor Koul's programme, while Appendix 2 outlines Professor Rumble's programme.

2 THE DEVELOPMENT OF OPEN SCHOOLING

2.1 Open Schooling: a definition

The Commonwealth of Learning acknowledges that there are different views on what Open Schooling is but itself uses a very broad but simple definition: Open Schooling involves "the physical separation of the school-level learner from the teacher, and the use of unconventional teaching methodologies, and information and communications technologies (ICTs) to bridge the separation and provide the education and training"⁶.

In developing this thinking, COL explains that:

"Open Schooling is not called open/distance schooling for a reason. Open Schooling may follow different patterns, but the most common scenario is that the learners study specially designed open learning materials on their own - at home, in their workplace, wherever it is convenient for them - and then they meet together with a facilitator on a regular basis. The "open" in Open Schooling refers to the openness of the system - seldom are there rules dictating student ages, prerequisites, content of courses to be taken or number of courses in which students must enrol. For example,

- Youth that missed out on schooling in their childhood can enrol in courses which will provide them with the equivalence of secondary education without their having to endure the embarrassment of being in classrooms with children much younger than themselves.
- Young mothers can take secondary level education through studying at home, and attending tutorials only when necessary and their responsibilities permit.
- Working adults can enrol in one or two courses at a time, and study whenever their personal and work commitments permit.
- Young adults can acquire skill training coupled with academic subjects while self-employed or working as non-skilled labour.

The openness facilitates the learning - anyone can enrol in any course at any time and study at their own convenience and schedule.

The face-to-face sessions with the facilitator are mainly to clarify any difficulties that the students may have experienced when working through the learning materials. These sessions are seldom mandatory. It does not affect a student if he or she has to "drop out" for a period of time - they can pick up their studies once again, when it is convenient for them to do so. The facilitators do not teach the learners. In fact, the facilitator may not know much about the subject area at all. The role of the facilitator is to guide the learners and assist them to understand how to study the content in the material.

In addition to the facilitator, there is usually a subject matter expert available – possibly through telephone or e-mail contact – who will respond to questions relating to the subject content. Having the expert available is key. Although he or she may only be called upon once in a while, it is important that facilitators are aware that someone is there to answer any content questions that might arise.

⁶ Commonwealth of Learning: <http://www.col.org/colweb/site/pid/3905>, accessed 19 April 2007

The student-facilitator meetings are often held in learning centres located in libraries, churches, non-governmental organisations (NGOs), schools or other semi-public places. The meetings may be fixed times during a week, or may be held at the students' and facilitators' convenience. Having the learning centres located in local neighbourhoods add to the increased access of the education, especially for girls and women who would not usually be permitted to travel any distance to a public school. Sometimes the meetings may be virtual, organised through teleconferencing, interactive radio or television broadcasts or e-mail listservs.

The facilitators or experts mark the students' exercises and assignments, and provide feedback designed to assist the students in understanding content when their answers indicate this is required. Sensitive, careful marking is necessary, as it encourages and supports the learners while helping them to understand their mistakes."⁷

In respect of level, COL notes that:

"Open Schooling is most often offered at the secondary level to students/learners that have achieved a basic level of literacy, although there are some notable exceptions, such as the Interactive Radio Instruction literacy initiative in Zambia.

The potential of Open Schooling at the primary level is great because of the additional opportunities that are feasible due to the newly available and affordable ICTs. However, more research needs to be undertaken, and new models examined and explored before expansion of Open Schooling at the primary level can be successfully rolled out.

COL recognises the vast opportunities for education and training that can be provided through successful Open Schooling initiatives. We will continue to work to increase the availability and quality of all levels of schooling provided through non-conventional means and to work with local ministries and institutions to help them meet the education and training needs of their most disadvantaged communities."⁸

2.2 Development of Open Schooling

The use of technology both to facilitate and to overcome the separation of teacher and learner has a long history going back to perhaps as early as 1728 when in *The Boston Gazette*, Caleb Philips advertised weekly lessons in shorthand to be sent to those wishing to learn the art. While this may have been simply a self-instructional system lacking the necessary two-way communication between a teacher and a student that characterises distance education, there is no doubt that in 1840 Sir Isaac Pitman began to use the recently introduced penny post service to underpin a correspondence education service teaching his new system of shorthand notation to the growing numbers of clerks working in government offices and businesses in the UK. Students were asked to transcribe passages of the Bible into shorthand, which Pitman then corrected and returned to them.

Further developments followed rapidly as correspondence education began to be used to:

- teach languages (Charles Toussaint and Gustav Langenscheidt's Berlin-based language school, established in 1856),

⁷ Ibid.

⁸ Ibid.

- prepare candidates for the UK Civil Service entrance examinations (Skerry's College, Edinburgh, 1878),
- train accountants (Foulks Lynch Correspondence Tuition Service, London, 1884), and
- instruct on mining and mine safety (Thomas J Foster's correspondence course in eastern Pennsylvania, 1891).

Such projects were early progenitors of a long tradition involving the delivery of vocational education and training by distance means⁹.

At the university level, a number of correspondence colleges, such as the University Correspondence College (1887), were set up in the UK to help external students prepare for the University of London's external degree – an examination for which the University itself did not provide any teaching. The late-nineteenth century university extension movement in the USA, the UK and elsewhere encouraged the use of outreach programmes using correspondence methods, sometimes combined with face-to-face tutorials. Early providers included Illinois Wesleyan University (1874), Queen's University in Kingston, Ontario, Canada (1889), the University Extension Department of the University of Chicago (1891) and the University of Queensland in Australia (1911).

The twentieth century saw a global expansion of such "dual mode" provision as increasing numbers of universities offered programmes both on-campus through regular face-to-face classes, and off-campus through various forms of distance education using correspondence and audio-visual methods. Examples include the Indian universities' Correspondence Directories and the external degree programme of the University of Zambia¹⁰. From the 1920s on there was also a range of universities and other tertiary level institutions offering programmes solely at a distance, including a number of Soviet All-Union Correspondence Polytechnics set up in the mid-1920s and early 1930s, and the University of South Africa, rechartered as a correspondence-based university aimed at supporting "external" students in 1951. Higher education provision was given a further boost by the foundation of multi-media distance teaching universities in the 1960s – the first of these being the Open University in the UK (1969)¹¹. This ushered in a period of development, which saw the foundation of a number of distance-teaching universities¹², some of which, because they have over 100,000 students, have been described as mega-universities¹³.

⁹ See for example, Greville Rumble and João Oliveira (eds.) *Vocational education at a distance: International perspectives*, London, Kogan Page, 1992; Louise Moran and Greville Rumble (eds.) *Vocational training through distance education: A policy perspective*, London, RoutledgeFalmer, 2004; on teacher education specifically, see Hilary Perraton (ed.) *Distance education for teacher training*, London, Routledge, the Commonwealth Secretariat, and the Commonwealth of Learning; Bernadette Robinson and Colin Latchem (eds.) *Teacher Education Through Open and Distance Learning*, London, RoutledgeFalmer, 2002.

¹⁰ Richard Siaciwena (1983) 'Problems of managing an external degree programme at the University of Zambia' *Journal of Adult Education* [University of Zambia] 2, 1: 67-77; Siaciwena, R. M. C. (1988) 'The external degree programme at the University of Zambia', *Prospects* 18, 2: 199-206.

¹¹ For further information, see Börje Holmberg, *Growth and Structure of Distance Education*, London, Croom Helm, 1986; Greville Rumble and Keith Harry (eds.) *The Distance Teaching Universities*, London, Croom Helm, 1982.

¹² Greville Rumble and Keith Harry (eds.) *The distance teaching universities*, London, Croom Helm, 1982.

¹³ Daniel, J. S. (1996) *Mega-universities and Knowledge Media: Technology Strategies for Higher Education*, London: Kogan Page. [First edition]

2.2.1 ODL and non-traditional schooling

Recent focus on what in Europe is often referred to as "open and distance learning" (ODL) has stressed provision at the higher education level – in part because universities and university academics have dominated the international conference circuit and the professional distance and eLearning literature. Yet there is a long history of non-traditional schooling some of which may be regarded as falling within the broad definition of Open Schooling as defined by COL.

Early open schools tended to arise from efforts to help individual out-of-school children pursue their studies, either because they could not get to a school, or because they were unable to stay in school. In Sweden, H. S. Hermod started what became Hermods when he sought to support an individual student who had moved away from Malmö. Similarly, the exclusive, private Baltimore-based Calvert School (set up in 1897), following experiments dating from 1905, began from 1908 to educate children at home, including children who were house-bound and those whose parents were in the armed forces, the diplomatic and consular services, or who worked overseas in other capacities¹⁴.

It was developments in Australia, however, that showed the way to the provision of state-funded primary and secondary education through correspondence teaching when in 1914 the Victorian Education Department began systematically supporting home learners – a development that, with the use of radio, was formalised in 1951 into the Australian Schools of the Air. This enabled children in isolated homesteads to study from specially designed teaching materials and communicate with their teacher and fellow students using two-way radio. The system now uses a two-way broadband satellite network¹⁵.

The New Zealand Correspondence School, set up to meet the needs of children in rural areas, provides the same primary and secondary syllabus as conventional schools to some 20,000 children and adults¹⁶. The School meets the needs of those who are unable to attend a school at all, as well as those who are in school but want to take a subject not offered in their school. Another early development – the Centre National d'Enseignement par Correspondance in France – was established to support those school-aged children whose studies were being disrupted during the Second World War. Now called the Centre National d'Enseignement à Distance, it offers programmes from primary to degree level¹⁷.

In the 1960s and 1970s, in the wake of decolonialisation, correspondence education was adopted widely in Africa as a means of expanding educational provision and meeting the needs of adults who lacked school qualifications (Botswana Extension College, 1973; Correspondence Course Unit of the University of Nairobi, Kenya, 1967; Malawi Correspondence College, 1964; Swaziland International Education Centre, 1974)¹⁸. In India, an Open School was set up in 1979 to meet the frustrated demand for secondary education, and to provide opportunities to

¹⁴ Archibald Murdoch Hart, "The origin of Home Instruction (for children, at the Calvert School)", in Ossian Mackenzie and Edward I. Christensen (eds.) *The Changing World of Correspondence Study: International Readings*, University Park, The Pennsylvania State University Press, 1971. For up-to-date information on the Calvert School, see <http://www.calvertschool.org/home-school/>, accessed 27 June 2007.

¹⁵ Center for Digital Government, Government technology International, "Australian School of the Air to Beam in by Satellite", May 2003, <http://www.centerdigitalgov.com/international/story.php?docid=53435>, accessed 27 June 2007.

¹⁶ See <http://www.correspondence.school.nz/>, accessed 27 June 2007.

¹⁷ For current information on its school activities, see <http://www.cned.fr/scolaire/>, accessed 27 June 2007.

¹⁸ Michael Young, Hilary Perraton, Janet Jenkins, and Tony Dodds, *Distance Teaching for the Third World. The Lion and the Clockwork Mouse*, London, Routledge & Kegan Paul, 1980.

disadvantaged sectors of society such as girls, women, and working adults¹⁹. Open schools also continued to be set up in developed countries where there was a need – as the foundation of the National Extension College (1963) in the UK demonstrated²⁰. Linked to these developments were efforts to ensure that such institutions protect themselves from the worst excesses of the private correspondence sector through the establishments of trade associations designed to establish and maintain minimum standards. The US National Home Study Association was set up in 1915, and similar bodies followed in other countries²¹.

2.2.2 *The introduction of technology*

Some schools-based projects sought to use technology to support and improve existing classroom teaching. In the UK, the BBC began its Schools Education Service in 1925 to enrich the classroom experience. Elsewhere, radio came to be used to improve the quality of science education (Voice of Kenya late 1960s "Beginning Science" series aimed at primary schools), and mathematics (Radio Mathematics project in Nicaragua, begun in 1975 and aimed at primary schools). Other projects, combining both correspondence and radio, sought to improve the quality of school education across the wider curriculum (Mauritius College of the Air, set up in 1972 to support secondary education²²). Projects in Latin America (Acción Cultural Popular, Colombia, 1947; Radio Santa Maria, Dominican Republic, 1964) in particular favoured the use of radio and correspondence materials. The Air Correspondence High School in South Korea²³, set up in 1974, used correspondence texts, radio programmes and fortnightly face-to-face sessions to provide secondary level education to out-of-school young people and adults.

Television also began to be used in the late 1950s and 1960s to deliver the school curriculum (or at least, substantial parts of it). Large-scale projects were set up in American Samoa, the Ivory Coast, El Salvador, Mexico and elsewhere. Some of these projects were set up to provide schools where none had existed before. An early project in Niger (Télé-Niger, started in 1964) pointed to the way in which remote classrooms supported by adult monitors (rather than trained teachers) could be used successfully to deliver primary school educational content through television. While the scale and economics of this experiment did not live up to expectations, the use of similar methods in the Mexican Telesecundaria project (starting in 1968) quickly expanded to provide high quality, cost-efficient secondary level education to large numbers of school-age students²⁴. However, the success of these large-scale ETV projects was mixed. In American Samoa and in El Salvador, there was teacher resistance and the service was redefined as a classroom enrichment support service.

¹⁹ Onkar Sing Dewal, "Open School, India", in B. N. Koul and Janet Jenkins (eds.) *Distance Education: A Spectrum of Case Studies*, London, Kogan Page, 1990.

²⁰ Janet Jenkins and Hilary Perraton, *The Invisible College: NEC 1963-1979*, Cambridge, International Extension College, 1980. For up to date information see http://www.nec.ac.uk/info/?usca_p=t, accessed 17 June 2007.

²¹ Greville Rumble and Colin Latchem, "Organisational models for distance and open learning", in Hilary Perraton and Helen Lentell (eds) *Policy for Open and Distance Learning*, London, RoutledgeFalmer, 2003.

²² For current information, see <http://www.mca.ac.mu/>, accessed 27 June 2007.

²³ Kye-Woo Lee, Shigenari Futagami, and Bernard Braithwaite, "Air Correspondence High School, South Korea", in B. N. Koul and Janet Jenkins (eds.) *Distance Education: A Spectrum of Case Studies*, London, Kogan Page, 1990.

²⁴ Michael Young, Hilary Perraton, Janet Jenkins, and Tony Dodds, *Distance Teaching for the Third World. The Lion and the Clockwork Mouse*, London, Routledge & Kegan Paul, 1980.

2.2.3 Meeting the need for secondary education

With the primary education system producing large numbers of graduates whose plans to go on to secondary level are frustrated through a lack of provision, the expansion of Open Schooling at secondary level has been seen as a way forward. Open schools have been set up to offer both junior and senior secondary education to adolescents for whom there are no conventional school places, to out-of-school young people and to adults.

Among the largest systems in Latin America are the Telesecundaria in Mexico and Telecurso in Brazil. Telesecundaria had in the early years of this century an annual enrolment of 750,000. The Bangladesh Open School is one of the six original schools of the Bangladesh Open University (established 1992). The school offers school equivalency courses including (from 1995) the two-year Secondary School Certificate across a range of subjects²⁵ and (from 1998) the two-year Higher Secondary School Certificate. There were 70,990 students taking the former programme in 2006, and 34,023 students taking the latter in 2005²⁶. The open schools in Indonesia, South Korea, and India are predicated on the assumption that they will reach millions of children.

2.3 Effectiveness of Open Schooling and its outcomes

How successful have these projects been? Perraton concluded that "at their peak", Latin American radio schools providing basic education "demonstrated that their combined technologies of radio, print and supported group study could be effective in offering a basic education to children and to adults"²⁷. Generally, however, open and distance education was not seen as a suitable vehicle for primary education. In contrast, at the secondary level, "open and distance learning has solid records of achievement, and grand claims of potential"²⁸. Particularly at the secondary level, open schools have added greatly to the number of educated school leavers. However, the proportion of those who enter and drop out before they graduate can be high: the "open door" can all too easily become a "revolving door" – particularly where students are unsupported in their studies.

Comparisons in terms of quality are acknowledged to be difficult, not least because so many open and distance learning projects cater to audiences not normally reached by conventional schools – students on the margin, students in work and adults. Many of these students start with more handicaps than do conventional students²⁹.

²⁵ M. Ali, A. Enamul Haque, and G. Rumble (1997) "The Open University: Mission and Promise", *Open Learning* 12 (2), pp. 12-28; Greville Rumble, "The Bangladesh Open University: Mission and promise", in Keith Harry (ed.) "Higher education through open and distance learning", London, Routledge, 1999.

²⁶ Sharker Md. Numan, Md. Anwarul Islam, and Anwar Sadat (2007), "Analytical views of student enrolment trends of different programs of the Bangladesh Open University and its projection", Turkish Online Journal of Distance Education, Vol 8, No 2, pp. 49-61, http://tojde.anadolu.edu.tr/tojde26/pdf/article_4.pdf accessed 17 June 2007.

²⁷ Hilary Perraton, "Aims and Purpose", in Hilary Perraton and Helen Lentell (eds.) *Policy for Open and Distance Learning*, London, RoutledgeFalmer, 2004, p. 11.

²⁸ Ibid. p. 12.

²⁹ Reehana Raza, "Benefits for students, labour force, employers and society", in Hilary Perraton and Helen Lentell (eds.) *Policy for Open and Distance Learning*, London, RoutledgeFalmer, 2004, p. 210.

2.3.1 Measuring gains and benefits

Most studies focus on the quality of the output (graduates) as measured by the proportion of students who graduate with a school leaving qualification. Such measures are crude in that they say nothing about value added – the difference in the level of knowledge and skills a student had on entry, against the level they have achieved when they leave the programme. Gains may be made in the cognitive (knowledge-based), psychomotor (skills-based), and affective (behavioural) domains, and impact not just on the individual's performance but also on improvements in labour productivity and economic growth. The latter benefit is often measured through the proxy measure of earning, on the grounds that the more productive a person is, the higher their earnings.

In measuring gains and benefits, however, there is a real problem in disentangling cause and effect so that the benefits accruing because of other factors are not automatically attributed to participation in an open and distance learning programme.

The benefits of Open Schooling may be private, accruing to the individual, to parents, and to the employer, or social, accruing to the labour market and society in general. Most studies of the benefits of Open Schooling focus on the former.

Unfortunately the area where there are the fewest studies of the benefits open and distance learning is in schools education – either at primary or junior secondary level. Nevertheless, some studies exist: the Telesecundaria, with 817,000 enrolments (2001) representing some 15 per cent of the total junior secondary market (1997-1998), had a pass rate of 93 per cent.³⁰ In Indonesia, enrolment in the open schools in 1996-1997 was 197,000, with about 92 per cent of enrolees graduating³¹. Against these levels, one has to place completion levels in the National Open School in India (400,000 students, completion rate of 43 per cent in 1998-1999), the open school in Thailand (2.548 million enrolees, completion rate 39 per cent), and Zambia and Malawi (completion rates of 35 per cent)³².

³⁰ UNESCO, *Distance Education in the E-9 countries*, Paris, UNESCO, 2001.

³¹ P. Edirisingha, "Reaching the unreached through distance education: costs, outcomes and sustainability", UNESCO Regional Seminar on the use of simple modern media for rural education, 12-19 December 1999.

³² Ibid.

Rumble summarised a number of studies where comparative information on pass rates in open and conventional schools was available and this is shown in Table 2.1 below³³.

Table 2.1: Student success at schools level: comparative performance of distance and conventional systems

Institution, country	Measure	Distance	Conventional	Relative Effectiveness Ratio	Notes
Institut de Radio-Educative de Bahia (IRDEB), Brazil ³⁴	Madurez pass rates in the town of Feira de Santanam 1976	37% 37%	61% 36%	0.61 1.03	1 2
Centros APEC de Educación a Distancia, Dominican Republic ³⁵	% of students who successfully complete the course, 1986/87	58% 58%	77% 80-85%	0.75 0.68 – 0.73	3 4
Air Correspondence High School, Korea ³⁶	Year end test scores (%age score), 1975: (a) mean, all subjects (b) Korean (c) English (d) Maths	(a) 56.5% (b) 51.5% (c) 36.8% (d) 44.0%	64.1% 65.8% 50.2% 75.0%	0.88 0.78 0.73 0.59	
Telesecundaria, Mexico ³⁷	Overall pass rate	86%	(a) 79% (b) 77% (c) 73% (d) 73% (e) 74% (f) 65% (g) 64%	1.09 1.12 1.18 1.18 1.16 1.32 1.34	5

³³ Greville Rumble, *The Costs and Economics of Open and Distance Learning*, London, Kogan Page, 1997, p. 165.

³⁴ João B. Oliveira and François Orivel (1982) "A Madureza Project in Bahia, Brazil", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982

³⁵ Gloria Muñiz Aquino (1988) "Análisis de la eficacia en función del costo de un proyecto de educación a distancia en la República Dominicana: El caso de CENAPEC", in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992

³⁶ Kye-Woo Lee, Shigenari Futagami, and Bernard Braithwaite (1982) "The Korean Air-Correspondence High School", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

³⁷ Eduardo Arena (1989) "Actualización del cálculo del costo de la Telesecundaria Mexicana", in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992; Secretaría de Educación Pública, Consejo Nacional Técnico de la Educación, Dirección General de Programación, *La enseñanza media básica en México y el Sistema Nacional de Telesecundaria en televisión y enseñanza media en México*, Consejo Nacional Técnico de la Educación, Mexico, 1981

Notes to Table 2.1

- (1) IRDEB, Brazil: direct teaching by qualified teachers
- (2) IRDEB, Brazil: private establishments and students who have prepared for the *madureza* without having followed a formal course
- (3) Centros APEC de Educación a Distancia: day school
- (4) Centros APEC de Educación a Distancia: night school
- (5) Telesecundaria, Mexico: Conventional systems are (a) Federal General Secondary schools, (b) State General Secondary schools, (c) private sector General Secondary schools, (d) Federal Technical Secondary schools, (e) State Technical Secondary schools, (f) private sector Technical Secondary schools, (g) Secondary Equivalency programme for Workers.

Source: Greville Rumble, *The Costs and Economics of Open and Distance Learning*, London, Kogan Page, 1997, p. 165

In this table, the Relative Effectiveness Ratio is a measure the effectiveness of the open school compared with the effectiveness of conventional schools in the same jurisdiction. For example, if a traditional education system graduates 85 students out of every 100 (effectiveness ratio of 85 per cent), and a distance system graduates 40 students out of 100 (40 per cent effectiveness ratio), then a measure of the comparative effectiveness of the distance system relative to the traditional one is obtained by dividing the effectiveness ratio of the distance system by that of the traditional system ($40 \div 85$) to give a Relative Effectiveness Ratio of 47 per cent. If the distance system has an effectiveness ratio of 90 per cent, then the comparative effectiveness is $90 \div 85$, giving a Comparative Effectiveness Ratio of 1.06.

For example, Table 2.1 provides information on the pass rates of students in the Centros APEC de Educación a Distancia in the Dominican Republic (58 per cent) compared with that in other secondary school systems in the country. In the day schools, the pass rate is 77 per cent, so the Comparative Effectiveness Ratio of the distance system is $58/77$ or 0.75. An effectiveness ratio of 1.0 indicates that the two systems are comparable in relative effectiveness. A ratio under 1.0 means that the distance system is less effective. A ratio of more than 1.0 means that it is more effective than the traditional system. The Table shows that the performance of the Telesecundaria is better than other schools in Mexico.

Various approaches towards Open Schooling have been developed over the years. While some have focused on providing opportunities to adults who missed out on the opportunity to go to school when they were young, the majority have been set up to expand the number of school places available. All too often these schools are seen as a second-rate alternative that attract less able students and achieve poorer results than conventional schools. These factors, coupled with their non-traditional teaching methods, have lowered the esteem within which they are held, and all too often they have been starved of funds³⁸. Nevertheless, there are successes – or at least partial successes – as the Mexican experience and some of the more recent Brazilian experiences make clear.

³⁸ Hilary Perraton, *Open and Distance Learning in the Developing World*, London, Routledge, 2000, p. 55.

2.4 Costs of Open Schooling

In the latter half of the 1970s, the World Bank funded a number of cost studies of alternative routes to formal education at primary and secondary levels. These studies were published in 1982³⁹. The focus was on two different approaches. The first involved the delivery of secondary equivalency programmes to students who attended a school room each day, and whose attendance was therefore supervised by a monitor. This included:

- the Federal Government Minerva Project in Brazil which was started in 1970 and from 1973 produced and broadcast to non-traditional schools the complete basic education cycle,
- the Educational Radio Broadcasting Institute of Bahia (IRDEB) project in Brazil which produced broadcast teaching programmes for use in non-traditional schools,
- the Malawi Correspondence College programme, and
- the Mauritius College of the Air programme).

The second approach relied on less frequent student attendance at tutorials and listening groups. Each of the institutions in this group (the Korean Air Correspondence High School, the Correspondence Course Unit in Kenya, and Everyman University [now the Open University] in Israel) offered courses at various levels – secondary, university and teacher training.

In addition to these World Bank funded studies, a number of other studies have been done by other agencies. Most of studies compared the average cost per student over a given period of time (a semester or a year), and most only focused on operational costs, thus excluding capital costs. In general, the studies focus on *efficiency* – that is, the ratio of output to input – taking no account of the relative quality of the teaching-learning that goes on within the systems being compared. A system is *cost-efficient* if, relative to another system, its outputs cost less per unit of input.

2.4.1 The Efficiency Ratio

One needs to have some kind of measure that will enable one to make relatively easy comparisons across institutions, jurisdictions and time. In any system where the average cost of a student/graduate in the distance mode has been compared with the average cost in the traditional mode, it is possible to establish the ratio of these costs by dividing the average cost in the distance mode by the average cost in the traditional mode. Thus in the case of IRDEB in Brazil (see Table 2.2 below), the average cost per student-semester in IRDEB (Cr\$2200) can be divided by the average cost per student-semester in private institutions (Cr\$505) to give a ratio of 4.36. This ratio is referred to as the *Efficiency Ratio*. The Efficiency Ratio has the value that it can compare the relative efficiency of any distance teaching system with traditional systems in the same jurisdiction and allow comparisons to be drawn across jurisdictions. A ratio of:

- 1.0 would mean that the distance system is as efficient as the comparator system,
- less than 1.0 means that the distance system is more efficient than the comparator, and
- greater than 1.0 means that the distance system is less efficient than the comparator

³⁹ Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

An efficiency of 4.36 indicates that the IRDEB system is very inefficient. The various studies showed that:

- The IRDEB offered the *madureza* (secondary school equivalency certificate for adults) programme to adult students. Oliveira and Orivel⁴⁰ indicated that with only 8,000 student-semester enrolments, and with students studying less intensively than in other systems, the Efficiency Ratio of IRDEB's distance teaching system was 4.36 compared to conventional private institutions (i.e. much more expensive). To compete with them on cost grounds, IRDEB's student numbers would have to expand significantly in order to spread its fixed costs over a wider student base.
- With 17,700 students, the Minerva project in Brazil provided a cost-efficient route to the *madureza* (Efficiency Ratio 0.65)⁴¹.
- The Malawi Correspondence College, with 2884 students, provided an efficient correspondence/radio-based alternative route to secondary education (Efficiency Ratio of between 0.23 and 0.62, depending on the costs in the comparator institutions)⁴².
- The Mexican Telesecundaria provides classroom delivered televised lessons supported by monitors and study guides. An early cost study by Mayo, McAnany and Klees⁴³ suggested that the system was efficient (Efficiency Ratio of 0.76 with 33,840 students), but later cost studies⁴⁴ indicated Efficiency Ratios of 1.09 (with 170,000 students) and 1.32 or greater (with 400,000 students). Arena⁴⁵ may provide one of the clues for this loss of efficiency: even though the number of students in the Telesecundaria had risen, the school was so successful that it expanded into smaller and smaller communities, with the

⁴⁰ João B. Oliveira and François Orivel (1982) “A Madureza Project in Bahia, Brazil”, in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982, pp. 79, 84.

⁴¹ João B. Oliveira and François Orivel (1982) “The Minerva Project in Brazil”, in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

⁴² Laurence Wolff and Shigenari Futagami (1982) “The Malawi Correspondence College”, in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

⁴³ J. Mayo, E. McAnany, and S. Klees (1975a) “Estimación de costos unitarios del sistema nacional de telesecundaria”, in Montayo, A. and M. A. Rebeil (eds.) (1981) *Televisión y enseñanza media en México: el caso de la Telesecundaria*, Mexico, CNTE-GEFE, 2 volumes, 1981. Cited in Eduardo Arena (1989) “Actualización del cálculo del costo de la Telesecundaria Mexicana”, in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992

⁴⁴ R. Molina (1981) “Estimación de costos unitarios del Sistema Nacional de Telesecundaria”, in Montayo, A. and M. A. Rebeil (eds.) *Televisión y enseñanza en México: el caso de la Telesecundaria*, Mexico, CNTE-GEFE, 2 volumes, 1981. Cited in Eduardo Arena (1989) “Actualización del cálculo del costo de la Telesecundaria Mexicana”, in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992, pp. 59-60.

⁴⁵ Eduardo Arena (1989) “Actualización del cálculo del costo de la Telesecundaria Mexicana”, in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992; Secretaría de Educación Pública, Consejo Nacional Técnico de la Educación, Dirección General de Programación, *La enseñanza media básica en México y el Sistema Nacional de Telesecundaria en televisión y enseñanza media en México*, Consejo Nacional Técnico de la Educación, Mexico, 1981, pp. 60, 49.

result that the average group size fell from 29 in 1975, to 27 in 1981, to 20 in 1989. However, there may have been other factors at work as well: for example, the traditional school system may have become more efficient.

- The Centros APEC de Educación a Distancia in the Dominican Republic had an Efficiency Ratio <1.0 compared with day, afternoon and evening secondary school⁴⁶.
- The Korean Air Correspondence High School (ACHS) was set up to reach some of the 1.4 million school-age population who in 1977 could not attend traditional high schools, as well as some of those who had been unable to attend traditional schools in the past. ACHS teaches basically the same curriculum as traditional high schools, using textbooks, self-marked and teacher-marked assignments, and radio and television broadcasts. Students can attend at educational centres for face-to-face teaching (with the option of substituting correspondence support if they can not get to a centre). In 1976, the ACHS had 18,782 enrolled students. Lee, Futagami and Braithwaite⁴⁷ indicated that some 90 per cent of the total cost was variable, driven by the number of students, student-hours in class-room teaching, broadcast-hours, production-hours or student-hours involved in evaluation. The average cost per enrolled student at ACHS (US \$41) compared very favourably with that of traditional public high schools (Efficiency Ratio 0.18)⁴⁸.

⁴⁶ Gloria Muñiz Aquino (1988) “Análisis de la eficacia en función del costo de un proyecto de educación a distancia en la República Dominicana: El caso de CENAPEC”, in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992, pp. 36, 39.

⁴⁷ Kye-Woo Lee, Shigenari Futagami, and Bernard Braithwaite (1982) “The Korean Air-Correspondence High School”, in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982, p. 151.

⁴⁸ Ibid. p. 157.

Rumble summarised the cost findings in Table 2.2 below⁴⁹.

Table 2.2: Comparative costs per student of distance and traditional education systems

Institution, country	Measure of cost	Number of students	Distance	Unit cost (given currency)	Efficiency Ratio	Note
Institut de Radio-Educative de Bahia (IRDEB), Brazil ⁵⁰	Average cost per student-semester preparing for three topics, 1977 at 1976 prices	8,000	Cr\$2200	Cr\$505	4.36	1
Minerva project, Brazil ⁵¹	Unit cost per student per year	17,700	Cr\$258	Cr\$400	0.65	2
Malawi Correspondence College, Malawi ⁵²	Average cost per student enrolment (junior secondary level), 1977/78	2,884	MWK 133 MWK 133	MWK 216 MWK 580	0.62 0.23	3 4
Telesecundaria Mexico ⁵³	Average cost per student, 1975 at US\$1972	33,840	US\$151	US\$200	0.76	
⁵⁴	Average cost per student, 1981	170,000	Pesos 12928	Pesos 11811	1.09	

⁴⁹ Greville Rumble, *The Costs and Economics of Open and Distance Learning*, London, Kogan Page, 1997, p. 136.

⁵⁰ João B. Oliveira and François Orivel (1982) "A Madureza Project in Bahia, Brazil", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

⁵¹ João B. Oliveira and François Orivel (1982) "The Minerva Project in Brazil", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

⁵² Laurence Wolff and Shigenari Futagami (1982) "The Malawi Correspondence College", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

⁵³ J. Mayo, E. McAnany, and S. Klees (1975a) "Estimación de costos unitarios del sistema nacional de telesecundaria", in Montayo, A. and M. A. Rebeil (eds.) (1981) *Televisión y enseñanza media en México: el caso de la Telesecundaria*, Mexico, CNTE-GEFE, 2 volumes, 1981. Cited in Eduardo Arena (1989) "Actualización del cálculo del costo de la Telesecundaria Mexicana", in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992.

⁵⁴ R. Molina (1981) "Estimación de costos unitarios del Sistema Nacional de Telesecundaria", in Montayo, A. and M. A. Rebeil (eds.) *Televisión y enseñanza en México: el caso de la Telesecundaria*, Mexico, CNTE-GEFE, 2 volumes, 1981. Cited in Eduardo Arena (1989) "Actualización del cálculo del costo de la Telesecundaria Mexicana", in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992.

⁵⁵	Average cost per student, 1988	400,000 +	US\$ 312.4 US\$ 327.8	US\$237 US\$237	1.32 1.38	5 6
⁵⁶	Average cost per group, 1988		US\$ 6239 US\$ 6546	US\$12318 US\$12318	0.51 0.53	7 8
Centros APEC de Educación a Distancia, Dominican Republic ⁵⁷	Average recurrent cost per student	11,217	RD\$180 RD\$180 RD\$180	RD\$390 RD\$325 RD\$300	0.46 0.55 0.60	9 10 11
Air Correspondence High School, Korea ⁵⁸	Average cost per enrolment, 1976, compared with the public school system	20,000	US\$41	US\$233	0.18	
Correspondence Course Unit, Kenya ⁵⁹	Average cost per subject equivalent: (a) 1970; (b) 1977	(a) 790 (b) 3,650	(a) K£6 (b) K£120	K£40 K£40	(a) 1.5 (b) 3.0	

Notes to Table 2.2

- 1 IRDEB, Brazil: Traditional provision based on the average cost across six private institutions
- 2 Minerva project, Brazil: Traditional provision based on the average cost in a private college
- 3 Malawi Correspondence College: Traditional provision based on the average cost in a conventional day secondary school
- 4 Malawi Correspondence College: Traditional provision based on the average cost in a boarding school
- 5 Telesecundaria, Mexico: Arena study: Comparison based on the lowest cost of television
- 6 Telesecundaria, Mexico: Arena study: Comparison based on the upper cost of television

⁵⁵ Eduardo Arena (1989) "Actualización del cálculo del costo de la Telesecundaria Mexicana", in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992; Secretaría de Educación Pública, Consejo Nacional Técnico de la Educación, Dirección General de Programación, *La enseñanza media básica en México y el Sistema Nacional de Telesecundaria en televisión y enseñanza media en México*, Consejo Nacional Técnico de la Educación, Mexico, 1981.

⁵⁶ Ibid.

⁵⁷ Gloria Muñiz Aquino (1988) "Análisis de la eficacia en función del costo de un proyecto de educación a distancia en la República Dominicana: El caso de CENAPEC", in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992.

⁵⁸ Kye-Woo Lee, Shigenari Futagami, and Bernard Braithwaite (1982) "The Korean Air-Correspondence High School", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

⁵⁹ David Hawkrige, Peter Kinyanjui, John Nkinyangi, and François Orivel (1982) "In-service teacher education in Kenya", in Perraton, H. (1982) *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press.

- 7 Telesecundaria, Mexico: Arena study: Comparison based on the lowest cost of television.
Average Telescundaria group size of 20 compared to conventional group size of 45
- 8 Telesecundaria, Mexico: Arena study: Comparison based on the upper cost of television.
Average Telescundaria group size of 20 compared to conventional group size of 45
- 9 Centros APEC de Educación a Distancia, Dominican Republic: Traditional provision based on the average cost in a secondary level day school
- 10 Centros APEC de Educación a Distancia, Dominican Republic: Traditional provision based on the average cost in a secondary level afternoon school
- 11 Centros APEC de Educación a Distancia, Dominican Republic: Traditional provision based on the average cost in a secondary level night school

Source: Greville Rumble, *The Costs and Economics of Open and Distance Learning*, London, Kogan Page, 1997, p. 136

As the figures in Table 2.2 demonstrate, several but not all of the projects managed to attain costs that compared very reasonably with the costs of conventional education. In Latin America, for example, projects such as Acción Cultural Popular in Colombia and Radio Santa María in the Dominican Republic were able to achieve costs per learner that were comparable to those in conventional schooling in these countries. Similarly, in Africa, there were a number of projects that were cost-efficient when compared with costs in traditional education.

Some studies also sought to establish the comparative cost of producing a graduate (see Table 2.3). Given that these studies are looking at the cost per graduate, and given that graduate status represents an achievement of at least a minimum standard, these studies obviously do take the quality of the output into account.

On the face of it, there should be a direct relationship between the cost per student and the cost per graduate, such that if it takes three years to graduate in a programme, then the cost per graduate will be three times the annual cost per student. However, comparison between the cost per student and cost per graduate in distance education almost invariably shows a decline in relative efficiency because the drop-out rate in distance education is almost always higher than in face-to-face education. As a result, the cost advantage of distance education may be eclipsed. Comparison between the Graduate Efficiency Ratio shown in Table 2.3 and the Efficiency Ratio per enrolee derived from Table 2.2 enables one to see the effect of drop-out on the relative efficiency of systems.

Table 2.3: Comparative costs per graduate in distance and traditional systems

Institution, country*	Measure of cost	# of students	Unit cost (currency)		Graduate Efficiency Ratio	Efficiency Ratio	Note
			Distance	Conventional			
Malawi Correspondence College, Malawi ⁶⁰	Average cost per graduate (junior secondary level)	2,884	MWK 931 MWK 931	MWK583 MWK1276	1.60 0.73	0.62 0.23	1 2
Centros APEC de Educación a Distancia, Dominican Republic ⁶¹	Average recurrent cost per successful student	11,217	RD\$306 RD\$306 RD\$306	RD\$483 RD\$455 RD\$360	0.63 0.67 0.85	0.58 0.55 0.60	3 4 5
Air Correspondence High School, Korea ⁶²	Average recurrent cost per promoted enrolment, 1976	20,000	US\$51	US\$233*	0.22	0.18	6

Notes to Table 2.3:

1. Malawi Correspondence College: Comparison with cost per graduate at a conventional day secondary school
2. Malawi Correspondence College: Comparison with cost per graduate at a boarding school
3. Centros APEC de Educación a Distancia, Dominican Republic: Comparison with cost per graduate at secondary level day schools
4. Centros APEC de Educación a Distancia, Dominican Republic: Comparison with cost per graduate at secondary level afternoon schools
5. Centros APEC de Educación a Distancia, Dominican Republic: Comparison with cost per graduate at secondary level night schools
6. Air Correspondence High School, Korea: Comparison with cost per graduate at a public regular high school

Source: Greville Rumble, *The Costs and Economics of Open and Distance Learning*, London, Kogan Page, 1997, p. 143

Table 2.3 shows, for example, that:

- While the Efficiency Ratio (per student) in the Malawi Correspondence College in 1977/78 was only 0.62 compared with the cost of conventional day secondary schooling

⁶⁰ Laurence Wolff and Shigenari Futagami (1982) "The Malawi Correspondence College", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

⁶¹ Gloria Muñiz Aquino (1988) "Análisis de la eficacia en función del costo de un proyecto de educación a distancia en la República Dominicana: El caso de CENAPEC", in João B. Oliveira and Greville Rumble (eds.), *Educación a Distancia en América Latina: Análisis de costo-efectividad*, Washington, D.C., World Bank, 1992.

⁶² Kye-Woo Lee, Shigenari Futagami, and Bernard Braithwaite (1982) "The Korean Air-Correspondence High School", in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982.

- and 0.23 compared with the cost of boarding school, because the students took much longer to graduate (seven years as opposed to 2.7 in the day schools and 2.2 in the boarding schools), this cost advantage was eroded. So, measured in terms of cost per graduate, MCC was more expensive than day schools while still retaining a cost advantage over boarding schools⁶³.
- Although there is a higher failure rate at the Air Correspondence High School, the average cost per student promoted between 1976 and 1977 compared with traditional schools (Graduate Efficiency Ratio of 0.22 per successful student) still favours the ACHS, and demonstrates little loss in efficiency against the Efficiency Ratio per student of 0.18⁶⁴.

2.4.2 Cost structure of ODL

To understand the bald figures provided by such average cost data, it is necessary to have some understanding of the nature of costs and the cost structure of open and distance learning systems. Management accounting has evolved. Traditional notions of fixed and variable costs have been embedded in the much richer framework of committed and flexible costs. Costs arise from the acquisition and use of organisational resources. Increasingly, the majority of expenses are determined by the commitment to create a productive capacity to develop and offer courses and an infrastructure to manage and support learners.

Such **committed costs** embrace, for example, most personnel costs, the costs of computing and telecommunications systems, and depreciation on buildings and equipment. Committed costs are unaffected by how much the organisation uses the committed resources. Rather they are related to a planned level of activity. There is thus a fundamental distinction between resources supplied and resources used. The fact that capacity is fixed (and is being paid for) in advance of determination of the actual need means that if need fails to meet expectation, unused capacity results. This unused capacity has a cost. The cost of the unused capacity cannot be forgotten: it has to be covered by income. The result of unused capacity is an increase in the organisational costs passed on to the customer.

Committed costs are distinct from flexible costs – which are paid for only in the amounts used. Examples of **flexible costs** would be payments to contract course authors, the postage costs of delivering materials to students, telephone call charges incurred in the normal course of business, payments to tutors for assignments marked. This is all day-to-day work. Relatively few expenses are determined by the actual quantity of work demanded or performed each day. Flexible resources do not have a capacity defined for them because their supply (and capacity) can be adjusted up or down to meet actual demands. Note that costs that are flexible before a capacity decision is made (for example, the commitment of resources to develop a course) become committed once that decision has been made.

Committed costs reflect the decisions that have been made to provide a given portfolio of courses and services. In most service industries, almost all expenses are determined by commitments to supply certain levels of capacity that are then built into the business through the acquisition of committed resources (e.g. clerks in a student record/support office). Very often these costs relate

⁶³ Laurence Wolff and Shigenari Futagami (1982) “The Malawi Correspondence College”, in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982, p. 98.

⁶⁴ Kye-Woo Lee, Shigenari Futagami, and Bernard Braithwaite (1982) “The Korean Air-Correspondence High School”, in Hilary Perraton (ed.), *Alternative routes to formal education: Distance teaching for school equivalency*, Baltimore, John Hopkins University Press, 1982, p. 157.

to the provision of capacity but cannot easily be attributed to particular products and services. Such costs are referred to as **indirect (common) costs**. Some indirect costs, however, are entirely independent of the decisions to provide capacity: rather, they sustain the organisation in being. Such costs (the costs of top administrative staff, for example) can be thought of as **business-sustaining expenses**. Generally activity based costing approaches will assign capacity-related indirect costs to products, services and customers – but will not attempt to assign business-sustaining expenses further down the organisation.

Any open and distance learning system involves the following cost elements:

- The initial capital costs of the business – buildings, equipment, grounds, furnishings and ICTs. These costs are driven by the size of the operation and the extent to which functions are undertaken in house or bought-in. Such costs are committed – in the sense that they arise from a management decision to supply a capacity to perform work.
- The costs of sustaining the business as an operation. These costs (in the past usually referred to as overheads) include the costs of direction and general management (finance, purchasing, estates – i.e. buildings and grounds running and maintenance costs, and ICT infrastructure operating costs) and depreciation (on plant and equipment). These too are committed costs that arise from a management decision to provide a capacity to operate at a given level and in a certain way.
- The costs of developing a curriculum and the materials used in courses. Some of these costs are committed and indirect common costs arising from the decision to create a capacity to develop and support a given curriculum (for example, there is a body of academic staff in post who are charged with the task of developing and maintaining a curriculum, permanent editors, designers and managers in the production office). Other costs may be flexible – that is, money is spent only if the activity takes place. An example of such a cost would be the hiring of a consultant to write materials. If course materials are used over a number of years, the cost of developing the materials may be treated as an investment and hence as a capital cost that can be annualised over the life of course. Replacement of the curriculum will in effect be a function of the number of courses multiplied by the average cost of a course, divided by the average life of a course.
- The cost of presenting the courses. Costs here include all those costs that are incurred annually (for example, the cost of academic management of the course profile, cost of packing and despatching course materials), together with all the costs that are incurred each time the course is presented (for example, the cost of developing new assignment and examination papers each time a course is presented; the cost of marking assignments and examination scripts, the cost of face-to-face tutorials and the monitoring of course computer-based conferences, where these are offered; the cost of getting materials to students; and the cost of transmitting radio programmes associated with the course.) Again, some of these costs may be committed (especially the cost of managing the courses being presented), but many of the costs will be flexible, driven by the number of students enrolled on the course, the number of tutorial or conferencing groups, the hours of tuition offered and the hours of broadcast transmission consumed.
- The committed and flexible costs incurred in supporting students including student admission, registration, billing and fee collection, allocation to tutors, and advisory and support services.

Underpinning this cost structure (the relationship between the different cost elements) is a crucial distinction between committed costs, those arising from the management decision to provide a system with a given capacity that may then be used or unused, without affecting expenditure, and

flexible costs, which are only paid for in the amounts used. Flexible resources do not have a capacity defined for them because their supply can be adjusted up and down to meet actual demands. A further distinction is made between those committed costs that are provided on the one hand to support the development of a curriculum, its courses and related materials; the management and annual maintenance of the curriculum that is being presented; and the student support services provided; and on the other hand, those committed costs that sustain the business. The overall cost structure can therefore be expressed as follows:

$$\begin{aligned} \text{Total annual costs} = & \\ \text{Business Sustaining Costs} + & \\ \text{Committed / indirect common course development costs} + & \\ (\text{Flexible course development costs} \div \text{life of the course}) + & \\ \text{Committed / indirect common course maintenance/presentation costs} + & \\ \text{Flexible course presentation costs} + & \\ \text{Committed / indirect common Student Support Costs} + & \\ \text{Flexible Student Support Costs} \end{aligned}$$

Both the Flexible Course Presentation Costs and the Flexible Student Support Costs are themselves a function of a range of activity-related costs driven by the appropriate volume of activity. For example, among the cost elements might be the following:

- Cost of assignment marking: The number of students on the course x number of assignments set x the average rate of submission of assignments x assignment marking fee paid to tutors
- Cost of tutorials: [The number of students enrolled on the course divided by the average size of a student group] x the number of scheduled hours of tutorial per group x fee paid per hour to tutors conducting tutorials
- Cost of radio transmission: The number of minutes of radio programming associated with the courses times the cost per minute of transmission

2.4.3 Factors affecting costs

The complexity of this cost structure is hidden by simple measures such as the average cost per student, the average cost per graduate and the average cost per putative instructional hour. Further, the reduction of all costs to a single measure such as the cost per student, which is then used to calculate the financial effects of expansion or contraction, will distort the picture because costs are in fact driven by a very wide range of variables, and affected by commitments. Having said this, a number of key factors will affect the average cost outcome, including:

- The total number of students, overall. The more students there are, the more committed institutional costs will be spread across the student body, thus bring average costs down.
- The number of course options. To maintain their academic credibility and cater for minority interests, most institutions have to offer a range of courses. The more courses there are, the greater the level of initial investment in their development and the greater the annual expenditure in maintaining and replacing them. In general, institutions offering a range of courses, and a mix of mandatory and optional courses find that student numbers are not equally distributed across all courses. Some courses (mandatory courses, lower level courses and courses in popular subjects) will have more students in them, and others less. Indeed, some courses may attract very few students indeed. Large population courses will be more efficient than small population courses, other things being equal. A large student population

will mitigate the burden imposed by small population courses, but many institutions nevertheless find that the cost of small population courses is effectively carried by the efficiencies reaped on courses attracting large numbers of students.

- The number of years over which a course is presented without any changes to the materials will affect the annualised cost of development. The greater the course life, the longer the period over which these costs will be spread. Long course lives are nevertheless problematic because subjects develop, and dated courses will reduce the overall quality of a programme. At schools level, particularly where a school is teaching to a national curriculum, this is less of a problem. Conversely, however, changes in the national curriculum may force an open school to redesign all its courses in one go – and frequent changes can be financially crippling.
- The choice of the media and technologies used. Each technology has its own cost structure (a balance of committed and flexible costs). The flexible element in the cost will be driven by different factors – student heads, student courses, ratio of tutors to students, proportion of assignments returned for correction and size of tutorial group.

Research has shown that the print, audio and pre-recorded instructional television tend to be cheaper, together with radio where audience sizes are above 1,000; and that the most expensive technologies tend to be face-to-face tuition and computer-based communication (except for relatively small numbers of students). The cost of computer-based teaching and learning – which includes hardware, software, connectivity, consumables, electronic library and other site access, and academic and technical support – varies enormously, depending upon what is being offered. Current studies on the costs of computers in schools include those by Cawthera and Bakia⁶⁵. The burden of small population courses can be mitigated by choosing to teach such courses using media with low levels of committed costs. On the other hand, teaching high population courses using media with high flexible costs will cause total costs to escalate rapidly.

- The type of learner support offered. The high cost of face-to-face support means that its use should be limited if costs are to be kept down. All too often, however, there is pressure to make open schools look like traditional schools. This pressure leads demands for more face-to-face teaching. In practice, as Bakia observes⁶⁶, many Open Schooling projects have high variable (i.e. flexible) costs – as well as substantial costs arising from the investment in materials and student support systems.

In addition to these factors, institutions that wish to keep costs down should⁶⁷:

- Avoid cost-inducing actions, for example, the use of copyrighted materials where high fees may be payable for usage.

⁶⁵ Andy Cawthera, *Computers in Secondary Schools in Developing Countries: Costs and Other Issues*, London, DFID, n.d. , available at <http://www2.dfid.gov.uk/pubs/files/computersinsecschoolsedpaper43.pdf>, accessed 28 April 2007; Marianne Bakia, “The economics of open and distance learning in primary and secondary schools”, in Jo Bradley (ed.) *The Open Classroom: Distance Learning in and out of school*, London, Kogan Page, 2003; Marianne Bakia, “The Costs of Computers in Classrooms: Data from Developing Countries”, TechKnowLogia 4 (1) (January – March 2002), 63-68, available at http://www.techknowlogia.org/TKL_active_pages2/TableOfContents/main.asp?IssueNumber=15, accessed 28 April 2007.

⁶⁶ Marianne Bakia, “The economics of open and distance learning in primary and secondary schools”, in Jo Bradley (ed.) *The Open Classroom: Distance Learning in and out of school*, London, Kogan Page, 2003, p. 41.

⁶⁷ Greville Rumble (1999) "Technology, distance education, and cost", *Journal of Education and Development in the Caribbean*, 3 (2), 91-104, pp. 92-3.

- Pass costs on to the student, either as charges or by moving the system boundaries so that the students pay for activities that the institution might once have paid for. An example of the latter would be the delivery of text materials in electronic form, thus reducing distribution costs markedly while putting the costs of printing onto the student.
- Adopt structures and labour policies that minimise costs. In other words, they will need to:
 - Employ people on contracts for service to develop courses and teach students, rather than on contracts of service (i.e. hire staff as casual labour, rather than as full-time employees), and
 - Establish working practices that reduce the costs of labour by, for example, designing courses to be wrapped around existing textbooks rather than developing new materials, and using author-editor models of course design, rather than big course team models.
- Use technology to increase the student load per academic or administrator.
- Reduce the cost of labour through "labour for labour" substitution – the replacement of expensive academic labour by less well-trained adjunct labour, which is cheaper.

2.4.4 ICT costs

One further comment is that the relative cost of technologies may vary significantly from country to country as, "for the first time in the history of educational systems, the price of an educational input is determined not in accordance with the local purchasing power, but by world standards which apply in a similar way to rich and poor countries"⁶⁸. For less advanced countries this has, according to François Orivel, posed a simple choice between either introducing "new technologies in their schools at the expense of expanding school opportunities or [concentrating] their limited resources on educational expansion, and thus renounc[ing] the chance to develop new technologies in their school systems"⁶⁹.

One of the arguments in favour of using technology is that it brings the unit cost of education down. In distance education, this has been done through the achievement of increases in productivity following the substitution of capital (in the form of technology) for labour (teachers). Indeed, one of the strongest arguments in favour of using text, reusable (recorded) audio and video, and ICT as a repository of information in education rather than using face-to-face teaching is that it shifts some of the teaching from the teacher to the medium, thus helping to bring down the unit cost of education (provided student numbers are high enough).

However, as Orivel points out, the costs of ICT are linked to a global market in hardware, software and consumables⁷⁰, so that the cost of computing does not really differ significantly between developed and developing countries. In developed countries, the cost per hour of using a computer was about US \$1.75 per hour in 1999⁷¹. This cost covered the amortisation cost of each computer (at zero rate of interest), maintenance, software, electricity, additional equipment such as printers and servers, some furniture, Internet connection, ISP costs and telephone costs. When compared with the cost per student per hour of face-to-face teaching (between US \$4.00 and US \$12.00) the cost was "clearly competitive"⁷². In developing countries, however, the cost per

⁶⁸ François Orivel, "Finance, costs and economics", in Chris Yates and Jo Bradley (eds.) *Basic Education at a Distance*, London, RoutledgeFalmer, 2000, p. 138.

⁶⁹ Ibid. p. 138.

⁷⁰ Ibid. pp. 147-48.

⁷¹ Ibid. p. 148. Based on R. Coley, J. Cradler, and P. Engel, *Computers and Classrooms: The Status of Technology in US Schools*, Princeton NJ, Educational Testing Service, 1999.

⁷² Ibid. p. 149.

student per hour of face-to-face teaching may be as low as US \$0.10, which, as Orivel observes, is very low when compared to the cost per student per hour of computing⁷³.

2.5 International cost comparisons

International comparisons of educational cost are based on the total educational expenditure for a given International Standard Classification of Education (ISCED) level (or two ISCED levels), divided by the total number of enrolments in the level(s). In order to make comparisons, a common measure is required. Student enrolments are usually measured in full-time equivalents – although as we shall point out, this measure is not without its problems.

As far as cost is concerned, one approach is to calculate local currency costs in US dollars, currently the dominant currency. This has serious problems due to the effect of exchange rate fluctuations. Another approach – now commonly used – is to calculate unit costs as a percentage of Gross National Product per capita. This seems reasonable given that most educational costs (e.g. teachers' pay, buildings costs, costs of furniture and costs of textbooks) have prices that are correlated with per capita GNP⁷⁴. Another useful measure that escapes the problems of comparing costs across jurisdictions through a common (but variable) currency exchange rate is the Efficiency Ratio discussed above.

2.6 Conclusions

In many ways, the development of Open Schooling is a forgotten history. Open and distance learning has become so dominated by universities with their tendency – given their research budgets – to bias research programmes, conferences and academic publishing towards the study of tertiary level distance and open learning, that open schools and correspondence schools have been marginalised. Very few practitioners now recall that when it was set up in the late 1930s, the International Council for Distance Education - then the International Council for Correspondence Education – was as focused on correspondence schools as it was on the development of extension studies in universities.

Also largely forgotten is the fact that the history of Open Schooling had its origins as much in the efforts of individual teachers who were trying to educate children at home, such as Hans Hermod in Sweden, the founders of the Calvert School in Maryland and the teachers whose individual efforts lay behind what later became the Australian Schools of the Air, and of visionaries such as Michael Young (Lord Young of Dartington), who was behind the setting up of the National Extension College in the UK. Similarly, it was a Colombian Jesuit priest who was behind the development in 1947 of what was, in essence, the prototypical Radio School in Latin America, Acción Cultural Popular (ACPO), with its focus on the learning group. The achievements of these pioneers and the institutions they founded have sometimes been clouded quite unjustifiably by the business ethics of those commercial correspondence colleges that were more interested in the profits to be made out of drop-out money than in guiding and supporting students to success⁷⁵.

⁷³ Ibid. p. 149.

⁷⁴ Ibid. p. 144.

⁷⁵ The term “drop-out” money was used to describe the practice of schools that required students to pay fees up-front on a non-refundable basis, and that then spent minimally on on-going tutorial support, thus in effect encouraging drop-out which in turn meant that they did not incur the cost of paying tutors to mark students’ assignments.

It is also, perhaps, unfortunate that the contribution of institutions such as the Korea Air Correspondence High School and the more recently established Bangladesh Open School, a constituent part of the Bangladesh Open University, have never been adequately researched.

In the euphoria that followed the development of mass educational media, money was poured into educational television and, to a much lesser extent, educational radio. Educational radio – the less expensive of these two media – has survived in corners of the world and remains in the view of many an unexploited medium of instruction. The achievements of educational television in projects such as the Telesecundaria in Mexico and in some of the Brazilian projects need to be set against the problems encountered in El Salvador and in the Ivory Coast. As David Hawkrige remarked of the latter, "the project has 'sunk without trace' and educators say that never was so much wasted, including [World] Bank funds, on such poor television broadcasts with so little effect".⁷⁶

More recently, the focus has been on the use of computers to support open learning in schools and whether this newer technology can be harnessed to improve both the reach and the quality of schools. Technological enthusiasts are optimistic; others reserve judgment.

Open schools have been successful in both bringing down the costs of education and educating out-of-school youths as well as adult learners. The experience of the two institutions that are the focus of the following chapters can now be placed within the context of the earlier developments sketched out in this chapter.

⁷⁶ David Hawkrige, *General Operational Review of Distance Education*, Washington, D.C., Education and Training Department, World Bank, mimeo, p. 2, cited in Hilary Perraton, *Open and Distance Learning in the Developing World*, London, Routledge, 2000, p. 34.

3 ECONOMY AND EDUCATION IN INDIA

3.1 Introduction

The Republic of India, ranked the seventh largest and the second most populous country, covers 3,287,263 square kilometers (54 per cent of which is arable land)⁷⁷ and inhabits 1,095,351,995 people (July 2006 estimates)⁷⁸. This is about one-sixth of the world's population. The 2001 Census showed more than 72 per cent (see Table 3.1) of Indians living in rural areas. Apart from the rural-urban divide, the presence of all the major religious groups remarkably enhances the native human diversity, which is made more complex by immense linguistic diversity. More than 22 major languages (belonging to Austro-Asiatic, Dravidian, Indo-European and Tibeto-Burmese language families) and hundreds of dialects are in use across the length and breadth of the country. Significant geographic divisions of the landscape and great socio-cultural variations multiply the manifold diversity.

In economic terms, India is a rich and a poor country at the same time. With its Gross National Product (GDP) at US \$691.2 billion and GDP PPP at US \$3,389.7 billion, India is the tenth biggest economy in general terms and the third biggest economy by purchasing power respectively⁷⁹, but the Gross National Income per capita is a meager US \$720⁸⁰. The origins of GDP⁸¹ are:

- agriculture (21.5 per cent),
- industry (27 per cent), and
- services (51.5 per cent).

The corresponding employment profile⁸² is 60 per cent of the labour force in agriculture, 17 per cent in industry and 23 per cent in services.

Clearly, the largest proportion of the labour force, employed in rural settings, is the least productive, while the proportion engaged in services, generally in urban areas, is the most productive. While the higher level of productivity in the service sector is a relatively recent phenomenon, poor productivity in the agriculture sector, in spite of the Green Revolution⁸³, has been a major concern in India. Recognising that low levels of literacy among the public in general and the labour force in particular, together with the traditional methods of agriculture, were the major causes of poor productivity in agriculture, since the 1950s efforts have continued to

⁷⁷ *Pocket World in Figures 2007 Edition*, Profile Books Ltd., London, p.156.

⁷⁸ India Demographics key data: <http://www.india-news.in/reference/india-demographics.php> (accessed on 15.07.07).

⁷⁹ *Pocket World in Figures 2007 Edition*, Profile Books Ltd., London, p.26.

⁸⁰ World Bank Key Development Data and Statistics:
<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20535285~menuPK:1192694~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html> (accessed on July 30, 2007)
<http://web.worldbank.org/WEBSITE/EXTERNAL/DATASTATISTICS/>

⁸¹ *Pocket World in Figures 2007 Edition*, Profile Books Ltd., London, p.156.

⁸² Ibid. p. 156.

⁸³ During the 1960s and 1970s, India increased the production of food grains significantly. This phenomenon came to be known as the "Green Revolution".

<http://www.goodnewsindia.com/Page/content/milestone/greenRev.html> (accessed on 15.07.07)

improve the educational attainments of the masses. In 2003-04, gross enrolment rates⁸⁴ of the respective relevant age groups had reached 85 per cent at primary level, 39 per cent at secondary level, and 9 per cent at tertiary level. The latest figures are 108 per cent, 53 per cent and 12 per cent⁸⁵.

3.1.1 Financial challenges of universalising education

Obviously, much more needs to be done, but paucity of funding does not favour educational re-engineering on conventional lines. At present, the Central and the State Governments collectively constitute the only means of taking education to the masses or bringing out-of-school children into the fold of secondary education (see subsection 3.3.2, “Outcomes of over 50 years of Educational Re-engineering”). The State Governments, however, are not in a position to do much in the process of universalising secondary education and much less in improving its quality, as they are already spending on average nearly 22 per cent of their aggregated annual budget on education. Within the secondary sector, 92 per cent of the State expenditure goes to salaries⁸⁶. Obviously, much of the burden will have to be taken by the Central Government, which is raising funds and also adopting alternative modes of education for the purpose (for a detailed explanation, see Chapter 4, Subsection 4.1.3).

While the number of private schools and the size of student population they cover are increasing progressively, this growth is in no way near the pressure that is building on the secondary sector of education (see Section 3.2 for details). The financial requirement for universalising elementary education is estimated to be 3.0 per cent of GDP, and that of universalising secondary education 2.33 per cent of GDP. Put together, 5.13 per cent of GDP per annum is required to universalise elementary and secondary education in the country⁸⁷. Such a provision once made has to be reviewed periodically, but it has *not*⁸⁸ been possible to fulfil the requirement of providing 6 per cent of GDP to cover elementary as well as secondary education (as estimated in the National Policy on Education-1968), and so the systems, especially the latter, have to be run under immense financial constraints. It is here that an analysis and the resulting understanding of the cost-effectiveness and cost-efficiency of the ODL operations should be of great value to the planners and the field level operatives.

3.1 Demographic factors and secondary education in India

Before we take up the themes of cost-effectiveness and cost-efficiency of Open Schooling in India, it is necessary to get an understanding of the demographic compulsions that favour Open Schooling. Here our focus is on the issue of the size of clientele, as other demographic factors

⁸⁴ From ‘Challenges before Indian Education’ under *Sector Overview*, Department of Higher Education, Ministry of Human Resource Development, Govt. of India: <http://education.nic.in/sector.asp>, p. 7. (accessed on 15.07.07).

⁸⁵ *Pocket World in Figures 2007 Edition*, Profile Books Ltd., London, p.157.

⁸⁶ ‘Planning & Management Issues’ in the *Report of the CABE Committee on Universalisation of Secondary Education*, (2005), Ministry of Human Resource development, Government of India, New Delhi, p.52.

⁸⁷ Ibid. p.51.

⁸⁸ From ‘Challenges before Indian Education’ under *Sector Overview*, Department of Higher Education, Ministry of Human Resource Development, Govt. of India: <http://education.nic.in/sector.asp>, p. 7. (accessed on 15.07.07).

pale into irrelevance in India, a country of 202.9 million households with an average family size of 5.3 members and the median age of 24.3 years⁸⁹.

The size (geographical and population) of India is common knowledge, but a snapshot of facts and figures (the data pertains to the years 2002 through 2004) should help in appreciating the size of student population and the country's unusual socio-educational complexity. It should be noted that India adds nearly one Australia to its population annually; so, for a comparable educational provision, education in India needs an annual increment capable of meeting the needs of an additional 19 million or so young people each year. Such money is not available; so, a better understanding of the task at hand is necessary. "Just establish more schools and universities" does not seem to be the sole answer. We will see why.

Table 3.1 Population of India as per Census 2001⁹⁰

Area	Population According to Census 2001								
	All Communities			Scheduled Castes			Scheduled Tribes		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Rural	381,602,674	360,887,965	742,490,639	68,603,342	64,407,536	133,010,878	39,045,650	38,292,947	77,338,597
Urban	150,554,098	135,565,591	286,119,689	17,485,418	16,139,404	33,624,822	3,595,179	3,392,464	6,987,643
Total	532,156,772	496,453,556	1,028,610,328	86,088,760	80,546,940	166,635,700	42,640,829	41,685,411	84,326,240
						16.2 %			8.2 %

Even if the general urban population (enjoying reasonable educational facilities) is left out of the discussion on secondary education, India must consider a base rural population of over 742 million together with nearly 41 million urban Scheduled Castes and Tribes (all together 783 million), most of whom make up the poor of India. Within this population, our focus is on the school going age group (see Table 3.2).

⁸⁹ *Pocket World in Figures 2007 Edition*, Profile Books Ltd., London, pp.157and 249.

⁹⁰ 7th Survey NCERT (2002), <http://gov.ua.nic.in/NScheduleData/nv01.pdf> and <http://gov.ua.nic.in/NscheduleData/nvo3.pdf> (accessed on July 30, 2007).

Table 3.2 Estimated child population as on 30 September 2002⁹¹

	Estimated Child Population in the Age-group (in years)				
	4 to below 6	6 to below 11	11 to below 14	14 to below 16	16 to below 18
Boys	25,722,323	68,685,427	42,084,322	24,962,562	23,199,033
Girls	23,910,272	63,031,482	38,108,851	21,897,001	19,532,333
Total	49,632,595	131,716,909	80,193,173	46,859,563	42,731,366
Urban	11,219,607	31,304,286	20,810,851	13,285,839	12,886,897
Rural	38,412,988	100,412,623	59,382,322	33,573,724	29,844,469
Total	49,632,595	131,716,909	80,193,173	46,859,563	42,731,366
	Elementary level = 211,910,082			Secondary level = 89,590,929	
	Elementary and secondary levels combined = 301,501,011				

Efforts made during the past few decades to universalise primary education have substantially enhanced educational provision for the 6-14 age group. Though the target of covering this group completely by 2007 has not been achieved, significant progress has been made on the way to achieving it. At the primary level, more than 93 per cent of the relevant age group are at school, but overall (primary and upper primary levels put together, i.e. the elementary level) only 80 per cent of the relevant age group are involved—this dip is primarily because of the relatively low intake at the upper primary level (see Table 3.3 below).

Table 3.3 Gross Enrolment Ratios at the primary level⁹²

INDIA	Primary Stage (Classes I-V)			Upper Primary Stage (Classes VI-VIII)			Combined for Primary and Upper Primary Stages (i.e. Elementary level: Classes I-VIII)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Rural	94.88	90.36	92.72	56.25	46.20	51.47	80.45	74.05	77.39
Urban	96.05	94.37	95.25	79.74	76.56	78.22	89.54	87.25	88.45
Total	95.16	91.31	93.32	62.34	54.09	58.42	82.69	77.28	80.11

A fact emerging from the data is that the secondary sector needs to be prepared for a deluge that it has never experienced before. Though the pressure on rural settings is seemingly less than that on urban settings (77 per cent against 88 per cent), in operational terms the former (because of the limited human resources and the fragile local infrastructure) will have greater difficulties in managing the flow of students entering secondary education. A look at the existing infrastructure is in place here.

⁹¹ 7th Survey NCERT (2002), <http://gov.ua.nic.in/NScheduleData/nv04.pdf> (accessed on July 30, 2007).

⁹² 7th Survey NCERT (2002), <http://gov.ua.nic.in/NScheduleData/ns300.pdf> (accessed on July 30, 2007)

Table 3.4 Number of schools and the stages* of education⁹³

Rural				Urban				Total			
Primary	Upper Primary	Secondary	Higher Secondary	Primary	Upper Primary	Secondary	Higher Secondary	Primary	Upper Primary	Secondary	Higher Secondary
1	2	3	4	5	6	7	8	9	10	11	12
716,037	250,975	84,370	22,847	134,384	87,005	46,305	21,022	850,421	337,980	130,675	43,869
								= 1,188,401	= 174,544		
										= 1,362,945	

* Primary Stage may also exist in Upper Primary, Secondary and Higher Secondary Schools. Upper Primary Stage may also exist in Secondary and Higher Secondary Schools and similarly, Secondary Stage may also exist in Higher Secondary Schools.

The number of children for primary education (211,910,082) was estimated to be more than twice (exactly 2.37 times) that for the secondary level (89,590,929) in 2002 (see Table 3.2). The corresponding number (see Table 3.4) of primary schools (1,188,401) and secondary schools (174,544) would allow 178 and 513 students at each of the primary and the secondary schools/sections respectively. While 178 students at a primary school distributed over eight classes (I to VIII) comes to a reasonable class/student ratio of 1:23 at the primary level, the ratio at the secondary level comes to 1:128 (i.e. 513 students distributed over 4 classes IX to XII). A class of 128 students is not manageable; it would need to be split into at least four sections, which most schools are not in a position to do, certainly not the ones in rural settings.

The point that emerges is that in/around 2002, the most rudimentary infrastructure (i.e. brick and mortar schools) required for secondary education was not in place. Considering the fact that around 90 per cent of the public funding goes to salaries of the school staff, it is not wrong to assume that a significant number of schools have not been established between 2002 and 2007, while the last of 2002 primary students would be entering the secondary level now, i.e. in 2007/8. In other words, we are faced with the issue of managing over 211 million students right at this point in time (see the number of 6-14 years age group in Table 3.2). Each of the existing schools would need to manage more than a thousand students in four classes (IX to XII), i.e. more than 250 students in a class, or about eight sections (each of nearly 31 students) of each class to be run concurrently.

Obviously, the physical infrastructure and the related additional human resources required for the secondary level of education do not exist, nor can they be created overnight to meet the impending deluge referred to earlier—once 100 per cent enrolment and retention at the primary level is achieved (the target year now is 2010⁹⁴), the secondary level edifice will crack and crumble instantly. It has not crumbled already, partly because, in fact, additional schools have been established in the meantime, but mainly because the entire eligible age group has not registered at schools.

⁹³ 7th Survey NCERT (2002), <http://gov.ua.nic.in/NScheduleData/ns17.pdf> (accessed on July 30, 2007)

⁹⁴ ‘Planning & Management Issues’ in the *Report of the CABE Committee on Universalisation of Secondary Education*, (2005), Ministry of Human Resource development, Government of India, New Delhi.

Table 3.5 Enrolment in Classes XI and XII (including degree colleges)⁹⁵

Sex	Enrolment in Classes XI and XII attached to degree colleges ⁹⁶			Total enrolment in Classes XI & XII (including Classes XI & XII in higher secondary schools)			Total enrolment in Classes I-XII
	Class XI	Class XII	Classes XI-XII	Class XI	Class XII	Classes XI-XII	
1	2	3	4	5	6	7	8
Boys	529,859	495,300	1,025,159	3,544,377	3,176,094	6,720,471	111,118,579
Girls	315,694	290,012	605,706	2,512,196	2,205,216	4,717,412	91,969,348
Total	845,553	785,312	1,630,865	6,056,573	5,381,310	11,437,883	203,087,927
Total	Classes XI and XII			13,068,748			

The entire school going age group: From Table 3.5 above, it may be noted that the total enrolment in classes I to XII is recorded to be 203,087,927, while the total number of children in the relevant age group (6-18 years) is 301,501,011 (see Table 3.2). That is (301,501,011 - 203,087,927) = 98,413,084 children were not at school.

The secondary school age group: The enrolment⁹⁷ at the secondary level (classes IX-XII) then was around 35 million with a Gross Enrolment Ratio of nearly 39 per cent. Nearly 54.74 million of the relevant age group were not at school. The total secondary level age group comes to (35 million at school + 54.74 million out of school) = 89.74 million, a figure that approximates the relevant one in Table 3.2).

Distributing 35 million students over 174,544 schools (see Table 3.4), assigns around 200 students per school, i.e. 50 students per class over four classes IX – XII. A class of 50 is crowded indeed, but Indian schools have learnt to manage this size. So, the existing setup, i.e. the conventional system of “brick and mortar” schooling for the secondary level of education is ticking on. But for how long?

⁹⁵ 7th Survey NCERT (2002), <http://gov.ua.nic.in/NScheduleData/ns281.pdf> (accessed on July 30, 2007).

⁹⁶ Before independence, schools in India covered just the first 10 years of education. As full-fledged universities were far and few, colleges were established to prepare students for their first university degrees. The first two years at these colleges provided what was called *intermediate education*, comparable to the present day senior secondary education. With the creation of the senior secondary provision to be implemented at schools, most of the colleges wound up their *intermediate classes* in the 1950s and 1960s. Some colleges, however, retained them under the new appellation ‘senior secondary classes’. Accordingly, today most of the senior secondary classes are conducted in *schools*, but quite a few are conducted in *colleges* also (see Tables 3.5 and 3.7).

⁹⁷ Department of School Education & Literacy, Secondary Education Statistics (data pertains to 2003), http://education.nic.in/secedu/sec_stats.asp (accessed on July 30, 2007)

3.2.1 Large numbers, insufficient funding

The conclusion is that in India, the single most significant demographic factor that clouds all the finer and worthy of consideration factors is the sheer number of the secondary school age group, of which a large subgroup is out-of-school and another large subgroup, slightly more than half the size of the first one, is engaged in schooling that needs improvements. Added to this prime issue is the issue of frustratingly inadequate funding. As said elsewhere, since 1968, when the requirement (that would really work) for education was estimated to be six per cent of GDP, the actual outlay has hardly ever touched four per cent.

It should be noted that quite a proportion of the out-of-school children work, and that in many cases, parents of such children believe that they are better off with their children's earnings in comparison to the possible returns to their education. In many cases, work is necessary for survival. Improvements in and expansion of infrastructure for conventional type of schooling is not going to solve their problems. In many cases learning and earning has to go side-by-side and conveniently too. Chamarbagwala remarks "that children's participation in child labour and schooling responds to economic returns to education in India, which suggests implementing policies that raise the economic benefits of education—such as creating more high-skilled jobs and improving the quality of education in order to lower child labour and increase schooling" ⁹⁸.

3.2 Structure of the Indian education system

3.3.1 Introduction

In order to fully appreciate the place, role and costs of Open Schooling in India, it is necessary to begin with an understanding of the structure and the size of its educational system as a whole.

At the time of her independence in 1947, India had a literacy rate of less than 18 per cent (see Table 3.8). The leadership was fully conscious of the importance of education for national growth and development. A National Commission under the Chairmanship of S. Radhakrishnan was set up to prepare a comprehensive report on higher education, which was submitted in 1948-9. The two significant contributions of this exercise were:

- i) Independent India envisioned its educational goals clearly—"Education confined to those who come from nobility, landed gentry or professional classes is suited to a society built on an economic and social hierarchy of classes. In a democratic society, the opportunity of learning must be open not only to an elite, but to all those who have to carry the privilege and responsibility of citizenship. *Education is a universal right, not a class privilege.*"⁹⁹ [Italics added.]

⁹⁸ Chamarbagwala, R. (2004), "Returns to Education, Child Labour & Schooling in India", Department of Economics, Indiana University, Bloomington. <http://129.3.20.41/eps/dev/papers/0410/0410003.pdf> (accessed on July 30, 2007).

⁹⁹ *Report of the University Education Commission-1948-1949, Vol. 1*, (1950), The Manager of Publications, Government of India, Delhi, p.50.

[Very low levels of literacy in each and every State, education divorced from developmental objectives, degraded situation of science education and the teaching of regional languages, importance of mother tongue at the primary level of education, poor provision for professional education and research were some

- ii) Taking off from the colonial provision for education and the system that managed it, it was/is a long way to reach the goal of universalising education in the country. And to achieve the goal, it was necessary to reformulate the educational structure right from the lowest level to the highest.

3.3.2 *Education¹⁰⁰ in the Republic of India (the first 50 years)*

Education on the State List (1950-1976)

The journey began with the promulgation of the new Constitution in 1950, which enshrined *free and compulsory education till the age of fourteen* as one of the Directive Principles of State Policy. The responsibility for education was assigned to individual states of the Republic, while the Union Government was responsible for co-ordinating technical and higher education besides the determination of standards.

The first Secondary Education Commission was set up in 1952-53 and the National Council for Educational Research and Training (NCERT) to modernise secondary education was established in 1961 in New Delhi. One of the major contributions of this period to the educational environment was the establishment of *Bal Bhavans*¹⁰¹ in 1956 aimed at the age group 5-16 years. The objective of this initiative is to motivate and enhance creativity and sports among the children. The National Bal Bhavan is an autonomous body under the Ministry of Human Resource Development. It is responsible for guiding, training the functionaries of and transferring information among the State and District level Bal Bhavans located all over the country. Equipped with libraries and other facilities, they provide programmes in performing arts, sports, martial arts, computer literacy and fine arts.

A comprehensive review of the entire system of education was conducted by the Education Commission set up in 1964 under the Chairmanship of Dr. D. S. Kothari, then Chairman of the University Grants Commission. It worked for two years and its recommendations led to the first National Policy on Education (NPE) which was adopted in 1968. However, with education being on the State List¹⁰², the National Policy could not but be of advisory utility only. A stronger and more effective policy provision had to be made.

Education on the Concurrent List (1976--)

For the National Policy on Education to take its legitimate course, education was shifted from the State List to the Concurrent List through a Constitutional Amendment in 1976, which provided for the Central and State Governments to be jointly/concurrently responsible for formulating and implementing educational policies and plans. Illustrations of the various resulting developments are as follows:

of the major concerns brought to the attention of the nation through the massive Report of this Commission.]

¹⁰⁰ Here our focus is on the pre-university (i.e. primary and secondary) levels of Education.

¹⁰¹ A Hindi expression meaning ‘Children’s House’.

¹⁰² Being on the State List, *Education* in India was the responsibility of individual States till 1976, when the Constitution was amended to shift it to the Concurrent List. This step made it possible for the Central Government to share this responsibility in as many ways as possible. Since then, *Education* is the responsibility of the Central Government and the State Governments concurrently.

- The Non-Formal Education (NFE) Programme meant for the age group 6-14 years was introduced by the Department of Education, Ministry of Human Resource Development, Government of India, in 1979-80 to cater to those who cannot join regular schools for whatever reasons, school dropouts, the children from remote and isolated areas and working children. It is run by NGOs which receive 100 per cent of their running costs as assistance from the Government. At present, it covers most of the backward, hilly, tribal, desert and slum areas in 25 states and Union Territories. To pay focused attention to girls¹⁰³, nearly 40 per cent of the NFE Centres in the States and 10 per cent of such Centres in Union Territories are reserved for girls.
- The Central Board of Secondary Education (CBSE), New Delhi, established the Open School as an experimental project on Open Schooling in 1979, three years after education was shifted to the Concurrent List in 1976. Ten years of experimentation (1979 to 1989) with the application of distance education modalities to secondary education convinced the Central Government of its applications and utility in meeting the multiple challenges that the secondary education provision faced. As a consequence, the Open School was remodelled as the National Open School (NOS) in 1989 as an alternative mechanism (see subsection 4.1.3) to address the issue of secondary education in the country.
- Navodaya Vidyalaya Samiti (NVS), an autonomous organisation, was established in 1985-86. Currently, it runs 539 schools spread all over the country. These are fully residential, co-educational higher secondary schools that provide board and lodging, textbooks and uniforms free of cost to all the students. More than 30,000 new students are admitted every year in Class VI on the basis of a selection/entrance test prepared by CBSE and given to primary school pass-outs in all the districts, where such schools are functional. (See also Subsection 4.4.1.)

The distribution of responsibilities between the States/Union Territories and the Centre¹⁰⁴ under NPE-1968, however, remained unclear, in spite of the Constitutional Amendment of 1976, until the new National Policy on Education-1986 was adopted in 1986. While retaining the responsibilities of the State Governments unchanged, the new National Policy spelled out the role¹⁰⁵ of the Central Government clearly. In addition to promoting and cementing the national and integrative purpose of education, the Central Government is to maintain quality and standards in education, to assess and monitor educational needs in relation to the manpower needs for development, to cater to research and advanced studies, to take care of the international aspects of education and human resource development in general and to work for excellence at all the levels of education everywhere in the country.

As already pointed to, one of the major consequences (of our interest here) that followed these developments was the establishment of the National Open School (NOS) based on the lessons learnt from the experimental project on Open Schooling, which was wound up in 1989 with the birth of NOS.

¹⁰³ ‘Women’ under Education in India, Wikipedia: http://en.wikipedia.org/wiki/Education_in_India (accessed on July 30, 2007)

¹⁰⁴ *Centre* stands for the Central/Union Government.

¹⁰⁵ *National Policy on Education-1986*, (1986) The Ministry of Human Resource Development, The Government of India, New Delhi, para 3.13.

Post-1992 Scenario

Drawing on the increased experience with the implementation of the National Policy on Education-1986, it was reviewed in 1992. Coupled with the revised Plan of Action-1992, it became a dynamic instrument of development and change. Some of the resulting developments worth mentioning are as follows:

- District Primary Education Programme (DPEP) was launched in 1994 to universalise primary education in a few selected districts and later extended to other areas. It was/is a major step towards decentralising educational planning and the implementation of plans at the local grassroots level.
- In 1995, the Central Government further enhanced this programme by providing support for mid-day meals¹⁰⁶ for government and aided primary school children all over the country.
- In 2000, 0.12 million (out of a total of 0.3 million) Non-Formal Education Centres were for girls, while overall 7.42 million children were being catered to at these Centres¹⁰⁷. To provide for the resulting increase in throughput, 30 per cent of the seats have been reserved for women in engineering, medical and other colleges.
- Facilities for specific sections of the society: Facilities are also being provided to various other traditionally deprived categories¹⁰⁸ of the society. For example, seats have been reserved for Scheduled Castes (SCs)¹⁰⁹ and Scheduled Tribes (STs)¹¹⁰ in all areas at all the levels of education. Special and exclusive scholarships and fee waivers (in some states) are now available to SC/ST students. In 2003-2004, the Department of Welfare for SCs, STs, OBCs and Minorities introduced the SC/ST tuition-fee reimbursement scheme¹¹¹ to help SC and ST students studying in recognised private institutions. The support available under the scheme covers about 85-90 per cent of the educational expenses of the beneficiaries. Similar incentives are available to Other Backward Classes (OBCs) and Minorities.

¹⁰⁶ The main purpose of the mid-day meal scheme (serving a good meal to all the students in the government run primary schools during school hours) is to improve the level of *retention* of students at the primary level, while boosting their nutritional intake as well, in order to strengthen the process of universalising education at this level.

¹⁰⁷ ‘Women’ under Education in India, Wikipedia: http://en.wikipedia.org/wiki/Education_in_India (accessed on July 30, 2007).

¹⁰⁸ In pursuit of the policy of inclusion, all the government funded institutions reserve seats for students from the disadvantaged groups of the society—15 per cent of the seats for Scheduled Castes (SCs), 7.5 per cent for Scheduled Tribes (STs) and 3 per cent for differently able students.

¹⁰⁹ Indian communities which remained neglected traditionally lacking opportunities for education, economic growth and social inclusion. Now, they have been given special privileges under the Constitution of India to undo the social and economic injustice they suffered from over the centuries.

¹¹⁰ Those of the original inhabitants of India who remained deprived and isolated from the mainstream cultural milieu. Like the Scheduled Castes, they too have been accorded a special status and right to special privileges under the Constitution of India.

¹¹¹ ‘SCs/STs and OBCs’ under Education in India, Wikipedia: http://en.wikipedia.org/wiki/Education_in_India (accessed on July 30, 2007)

3.3.3 Outcomes of over 50 years of educational re-engineering

There are two points to make under this heading: the current structure of the Indian education system, and the achievements made till the end of the last century.

Taking curriculum as the basic criterion, today there are four types of schools in India:

1. Schools that follow the curricula and regulations of the Central Board of Secondary Education (CBSE).
2. Schools that follow the curricula and regulations of the Council for the Indian School Certificate Examination (CISCE).
3. The National Institute of Open Schooling (NIOS).
4. The schools that follow the curricula and regulations prescribed by the respective State/Union Territory Boards of Secondary and Higher Secondary Education. Generally, they prepare students for the Secondary School Leaving Certificate (SSLC).

While the first three types are looked after by the Central Government, the fourth type is the responsibility of the respective States/Union Territories. The curricula used by these school types are comparable in essentials, while their variations are primarily location-specific.

In terms of ownership and resources¹¹², nearly 25 per cent of the secondary schools are private unaided (i.e. schools that do not receive any grants from any government, Central or State). These schools cater to nearly 9 per cent of the children (in the relevant age group), who come from the wealthy layer of the society. Another category comprises those private schools (run by non-profit trusts, international bodies and entrepreneurs) that are supported by government grants, often as high as 90 per cent of the running costs of the schools, and they cover more than 46 per cent of the children. These schools follow either the curriculum prescribed by the Central Board of Secondary Education or that prescribed by the related State/Union Territory Boards of Secondary Education.

The remaining 45 per cent of the children attend government run/funded schools, which are located in each major city, town and village. Most of these schools use the regional language as the medium of instruction. At some of these schools, study materials like textbooks, notebooks and stationery are subsidised. These schools follow the curriculum prescribed by the respective State/Union Territory Boards of Education. Thus more than 90 per cent of the students are supported by the Central/State/Union Territory government in one way or the other.

Years of modifications in the overall system have led to a new and more rational structure of school education, which is in operation currently (see Table 3.6 below). This structure is understood and followed uniformly throughout the country today. It has brought about significant uniformity in such a diverse country as India, which had as many systems as the number of principalities in the colonial period. With the systemic uniformity in place now, transfer of credits, mobility of students, exchange of teachers, and comparison of curricula and budgets are not issues any more. Further, national policies can be aligned with those of the States/Union Territories easily and the various activities at the level of implementation can be replicated with

¹¹² ‘Planning & Management Issues’ in the *Report of the CABE Committee on Universalisation of Secondary Education*, (2005), Ministry of Human Resource development, Government of India, New Delhi, p.51.

greater ease across the States and Union Territories. The operational variations of the structure, however, remain complex.

Table 3.6 Present structure¹¹³ of the Indian educational system

S. No.	Level of education ¹¹⁴	Classes (with exceptions)	Corresponding age group of students
1	Elementary school	I-VIII (I-VII in some States)	6-14 years
	a) Primary school	I-V (I-IV in some States)	6-11 years
	b) Upper primary or middle school	VI-VIII (V-VII in some States)	11-14 years
2	Secondary school	IX-XII (VIII-XII in some States)	14-18 years
	a) High/secondary school	IX-X (VIII-X in some States)	14-16 years
	b) Higher/senior secondary school	XI-XII	16-18 years
3	Higher/university education	Duration	18-24 years
	a) Non-professional general degree programmes		
	a1 Undergraduate level	3 years	18-21 years
	a2 Postgraduate level	2 years	21-23 years
	a3 Research degrees	At least 1-2 years	23-24/5
b)	Professional diploma/degree programmes	3-5 years depending on the field of studies.	18-21/23 years

3.3.4 Primary and secondary levels of education

With the implementation of the planned modifications, generally children at 5+ would enter the primary level of education, at 10+ they would step into the secondary level and at 17+ into a degree college or a university for the first degree, generally a three-year programme. This came to be known as the 10 + 2 + 3 system of education. The 10 in the formulation implies the first ten years of one's formal education including the first two years (the 9th and the 10th standards) of secondary education, +2 implies the last two years of secondary education, usually called the senior/higher secondary education and +3 refers to the three years meant for completing a general first degree programme. The first 10 years of school education, as indicated in the above table, are allocated in various ways in different States (28 in number) and Union Territories (7 in number). In 22 of them, the 9th and the 10th years of school comprise secondary education; while in the remaining 13 of them it is covered in classes 8th to 10th (see Table 3.7 below).

¹¹³ Based on 'Stages of Education in India' under *Sector Overview*, Dept. of Higher Education, Ministry of Human Resource Development, Govt. of India: <http://education.nic.in/sector.asp>, p. 3. (accessed on July 30, 2007).

¹¹⁴ The pre-primary level has not been shown in the table, as it is primarily managed by the private sector. Children aged 3 to 5 attend what are generally called Lower and Upper Kindergartens, each of one year's duration.

Table 3.7 Educational pattern in States/Union Territories¹¹⁵

Sl. No.	State/UT	Primary stage	Upper Primary stage	Secondary stage	Higher Secondary stage	Hr. Sec. Classes attached to degree college
1.	<i>Andhra Pradesh</i>	I -V	VI-VII	VIII-X	XI-XII	XI-XII
2.	<i>Arunachal Pradesh</i>	I-V	VI-VIII	IX-X	XI-XII	
3.	<i>Assam</i>	I-IV	V-VII	VIII-X	XI-XII	XI-XII
4.	<i>Bihar</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
5.	<i>Chhattisgarh</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
6.	<i>Goa</i>	I-IV	V-VII	VIII-X	XI-XII	XI-XII
7.	<i>Gujarat</i>	I-IV	V-VII	VIII-X	XI-XII	
8.	<i>Haryana</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
9.	<i>Himachal Pradesh</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
10.	<i>Jammu & Kashmir</i>	I-V	VI-VIII	IX-X	XI-XII	
11.	<i>Jharkhand</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
12.	<i>Karnataka</i>	I -V	VI-VII	VIII-X	XI-XII	XI-XII
13.	<i>Kerala</i>	I-IV	V-VII	VIII-X	XI-XII	
14.	<i>Madhya Pradesh</i>	I-V	VI-VIII	IX-X	XI-XII	
15.	<i>Maharashtra</i>	I-IV	V-VII	VIII-X	XI-XII	XI-XII
16.	<i>Manipur</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
17.	<i>Meghalaya</i>	I-IV	V-VII	VIII-X	XI-XII	XI-XII
18.	<i>Mizoram</i>	I-IV	V-VII	VIII-X	XI-XII	XI-XII
19.	<i>Nagaland</i>	I-IV	V-VIII	IX-X	XI-XII	XI-XII
20.	<i>Orissa</i>	I -V	VI-VII	VIII-X	XI-XII	XI-XII
21.	<i>Punjab</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
22.	<i>Rajasthan</i>	I-V	VI-VIII	IX-X	XI-XII	
23.	<i>Sikkim</i>	I-V	VI-VIII	IX-X	XI-XII	
24.	<i>Tamil Nadu</i>	I-V	VI-VIII	IX-X	XI-XII	
25.	<i>Tripura</i>	I-V	VI-VIII	IX-X	XI-XII	
26.	<i>Uttar Pradesh</i>	I-V	VI-VIII	IX-X	XI-XII	
27.	<i>Uttarakhand</i>	I-V	VI-VIII	IX-X	XI-XII	
28.	<i>West Bengal</i>	I-IV	V-VIII	IX-X	XI-XII	XI-XII
29.	<i>A & N Islands</i>	I-V	VI-VIII	IX-X	XI-XII	
30.	<i>Chandigarh</i>	I-V	VI-VIII	IX-X	XI-XII	XI-XII
31.	<i>Dadra & Nagar Haveli</i>	I-IV	V-VII	VIII-X	XI-XII	
32.	<i>Daman & Diu</i>	I-IV	V-VII	VIII-X	XI-XII	
33.	<i>Delhi</i>	I-V	VI-VIII	IX-X	XI-XII	
34.	<i>Lakshadweep</i>	I-IV	V-VII	VIII-X	XI-XII	
35.	<i>Pondicherry</i>	I-V	VI-VIII	IX-X	XI-XII	

In most places the senior secondary classes are conducted in schools which run classes I through XII, in some places they have exclusive senior secondary schools that conduct classes XI and XII

¹¹⁵ The 7th All India School Education Survey: <http://gov.ua.nic.in/aises/national/ep.asp>, (accessed on 6.6.2007).

only, while in some places these classes are conducted in colleges, which prepare students for their first university degrees as well.

In the process of materialising the new educational structure, institutional structures too had to be overhauled. In many cases the five-year high schools were extended to function as seven-year schools to accommodate $5 + 2 = 7$ years of combined secondary and senior/higher secondary education. Though many of the earlier intermediate¹¹⁶ colleges were upgraded to full degree¹¹⁷ colleges, some were merged with schools to accommodate senior/higher secondary students. As the minimum qualification required to teach at the senior/higher secondary level was fixed to be a Master's degree in the relevant discipline, the profile of teachers at schools changed before long. Teachers employed to teach at the higher secondary level came to be known as postgraduate teachers (i.e. teachers with postgraduate¹¹⁸ qualifications). Earlier the minimum qualification required of a secondary school teacher was just a first university degree. Now, it was made obligatory for non-postgraduate teachers to have Bachelor's Degree in Education (B. Ed.) also.

In addition to the expansion and overhauling of the mainstream lower education as outlined above, polytechnics, regional engineering colleges, medical colleges, specialist institutes of teacher education, technology and management also were established to improve the provision of higher education in the country. And to overcome the menace of adult illiteracy, provision was made and funds set apart for the non-formal sector of education also.

The organisational network that looks after the conventional schooling system is quite extensive and impressive. It comprises various institutions and bodies at the national and state levels—MHRD, NCERT, NIEPA, KVS, NVS and CBSE at the Central level and the State Ministries of Education, Directorates of Education, SCERTs, Textbook Bureaus and bodies like CTEs, IASEs, DIETs, University Departments of Education and Teacher Training Colleges at the state level.

As outlined above, the organisation for secondary/senior secondary education in the country is very wide and diverse, but there is a fundamental uniformity in the basics. For example, during the first two/three years at the secondary level, children must study two languages (English and a regional language with the provision of taking a classical or a foreign language in place of the latter), mathematics (arithmetic, geometry, algebra, statistics, etc), natural sciences (physics, chemistry and biology) and social sciences (history, geography, civics and economics). And at +2 level, children have to take English, three subjects/disciplines forming a broad specialisation (mathematics, physics and chemistry for the Engineering Group; biology, physics and chemistry for the Medical Group; political science, history and economics for the Social Sciences Group; commerce, accounting and economics for the Commerce Group and so on) and one or two more disciplines not necessarily related to the trio of the main groups selected. Recently, in addition to

¹¹⁶ Intermediate Colleges taught students, who had completed ten years of schooling successfully, for two years to prepare them for entry to first degrees classes. One could study for a first degree at what was called a Degree College or at a University Department.

¹¹⁷ Students studied for two years at a Degree College to get their first university degrees. Thus the structure of the system was 10 years of school education + two years at an Intermediate College + two years at a Degree College. Degree Colleges, as they are today, were mostly affiliated to a University in the region. In certain cases, however, they were and some continue to be constituents of a University.

¹¹⁸ In India it is customary to call a first degree holder *a graduate* and a Master's Degree holder a *postgraduate*. Accordingly, studies at the Master's Level are called *postgraduate studies* and not *graduate studies*.

vocational courses, disciplines like bio-technology, fashion design and computer applications have been introduced at the senior secondary level.

Each State and Union Territory administers secondary education through its own Board of Secondary Education, which is responsible for policy formulation, financial provision, determination of standards, setting of public examinations and certification. In some states, there are separate boards for the secondary and the higher secondary levels. The variations in standards of secondary education across the States/Union Territories are not significant, which accounts for their mutual recognition of qualifications and easy transfer of students from one board to another. Successful completion of the first ten years of education at school earns a matriculation (equivalent to five ‘O’ levels of the British system of schooling) and that of subsequent two years fetches senior/higher secondary school certificate (equivalent to five ‘A’ levels of the British system).

3.3.5 Links with higher education

Successful completion of the senior secondary education qualifies one to seek registration in a higher education institution for a degree programme, generally completed in three years. It is not as though all the first degree programmes are completed in three years. While a Bachelor’s Degree in Commerce and a Bachelor’s Degree in Arts/Humanities are completed in three years, a Bachelor’s Degree in Technology takes four years to complete, and the first medical degree takes five years. After the first degree, one may go for a Master’s Degree in a discipline related to what one may have studied at the first degree level. Beyond a Master’s degree, universities provide for M. Phil. and Ph. D. degrees. The Indian system of higher education does not allow first degree holders to work for a doctoral degree as is possible, for example, in Britain. Both M. Phil. and Ph. D. degrees may be obtained by theses only or by a combination of course work and thesis.

3.3.6 Open and distance education initiatives

To begin with, the alternative schooling system (see subsection 4.1.3 in Chapter 4) had to emerge from the network available for the conventional systems of schooling. The MHRD took the initiative through the Open School Project of CBSE. Today the alternative system is being looked after by MHRD, NIOS, State Ministries of Education, State Open Schools, State Departments of Education, State Boards of Education and other institutions engaged in ODL operations.

During the period 1950-2000, most of the resources were used to establish conventional institutions like primary schools, secondary and higher secondary schools, degree colleges, professional colleges and universities. Such corrective and reformatory steps notwithstanding, the realisation that i) the very size of the baseline population and the growth rate therein would thwart the proposed and implemented provision before long, and ii) the content and profile of education in the country would improve and undergo a sea-change, but access to education would remain a problem for large numbers of citizens and for a long time to come, prompted search for and experimentation in different and learner-friendly educational modalities.

Delhi University introduced degree programmes through the correspondence mode in 1962. This was the first dual-mode operation in the country. Soon after, many other universities introduced similar dual-mode operations throughout the country. Today, there are over 100 hundred such dual-mode operations and 13 dedicated open universities in the country. As for the secondary level, mention has already been made of the Open School and the National Open School (see subsection 3.3.2 and also Chapter 4).

3.3.7 Present challenges for secondary education in India

At the dawn of the 21st century, the educational scenario in India was significantly different in contrast with that of 1950 (see Table 3.8 below). The growth in the overall literacy rate and that among women especially, the rise in the number of institutions at all the levels and the increase in the variety of institutions for higher studies are indeed impressive. The impressive growth notwithstanding, there are obvious gaps, which have yet to be filled. For example, the number of higher education institutions is not commensurate with the size of the country, and public expenditure on education has not increased significantly. India has much more to achieve, and that should be very fast, as delays should multiply the issues. The challenges are obvious and they have to be met in right earnest.

Table 3.8 Progress¹¹⁹ made during 1950-2000

S. No.	Criterion/Item	Situation in 1950-51	Situation in 2003-04 (unless indicated otherwise)
1	Literacy rate	18.3 per cent	64.8 per cent (<i>2001 figure</i>)
2	Female literacy rate	8.9 per cent	53.7 per cent
3	No. of schools	0.23 million	1.18 million
4	No. of general colleges	370	9427
5	No. of professional colleges	208	2751
	No. of colleges —all the post-secondary education institutions	--	17,625 (<i>2004-05 figure</i>) <i>[University level institutions are not included here.]</i>
6	No. of university level institutions	27	338 (229 Universities, 96 Deemed Universities and 13 Institutions of National Importance) (as on 31. 03. 05)
7	Gross Enrolment Ratio in elementary education	32.1 per cent	84.8 per cent
8	Gender Parity Index at elementary level	0.38	0.93
9	Public expenditure on education as per cent of GDP	1.5 per cent	3.76 per cent
10	Number of teachers	--	6.2 million

With a billion-plus population, India is said to be a country of young people as nearly 40 per cent of the population belongs to the 6-24 years age group¹²⁰, which is typically the target group for formal institution based education the world over, including India. A simple profile of the coverage achieved so far within this age group is as follows:

¹¹⁹ Based on ‘Size of the Indian Education System & Quantitative Expansion’ under *Sector Overview*, Department of Higher Education, Ministry of Human Resource Development, Government of India: <http://education.nic.in/sector.asp>, pp. 5 and 6. (accessed on July 30, 2007)

¹²⁰ Based on the details presented under *Sector Overview*, Department of Higher Education, Ministry of Human Resource Development, Government of India: <http://education.nic.in/sector.asp>, p. 5. (accessed on July 30, 2007)

Table 3.9 **Coverage within the 6-24 age group¹²¹**
 (figures pertain to 2003-04, unless indicated otherwise)
 (Read Table 3.9 above together with the discussion following Table 3.5)

1	Target population (6-24 years age group—estimate for 2003)	411 million
2	Total enrolment in all educational institutions (school to university)	224 million
3	Target population yet to be involved and provided for	187 million

The un-reached (out-of-school/college/university) 187 million constitute a daunting figure. This, of course, is the conventionally known clientele for schools, colleges and universities put together. Added to this figure is “the new learner¹²²” born of the aspirations of a young democratic society driven by a socio-economic dynamism never seen in many centuries of sloth and slumber. And finally, we must not lose sight of the annual incremental millions¹²³ that get added to the above mind-boggling figures. As outlined above, India has done a lot during the past 50 years, but obviously there is much to be done. The major challenges¹²⁴ to be addressed are as follows:

- The most visible of the challenges is the issue of access. Though elementary schools are now available in the close vicinity of most children, institutions for the secondary and higher education are still too far to attend for many a student all over the country. Besides such spatial barriers, there are economic, academic, linguistic, social and physical barriers that ail education in India.
- The last major challenge is the lack of financial resources. So far, the combined efforts of the Central and State Governments have not been able to push the outlay for lower education above 3.76 per cent (2003-04 figure; see Table 3.8) of the GDP, though the very first National Policy on Education-1968 had estimated the need for fixing public funding for education at 6 per cent of GDP.
- The management of education in India continues to be bureaucratic in nature. It is a challenge to move to more professional, accountable, decentralised and inclusive management practices. Many of the issues including that of quality can be addressed more satisfactorily and speedily if the management of education gets overhauled.
- Quality of education too is a challenge. The factors affecting the quality of education in India are more than one—physical facilities and infrastructure are not adequate, nor up-to-date; appropriately qualified and trained teachers are not available in adequate numbers; the teaching-learning transaction (still dominated by rote learning) is not effective in many cases; and learner performance in many cases remains low.

¹²¹ Ibid. p. 5.

¹²² This is a mixed group of young and old, men and women, bright and mediocre, skilled and un-skilled and so on, who seek education and training for horizontal and upward mobility, for updating and upgrading their knowledge and skills, for equipping themselves with multiple-skills to face the volatility in the employment market or simply in pursuit of a better quality of life. Interestingly, this group includes many bright school leavers, who grab a job and at the same time look for education/training to build on.

¹²³ The estimated annual rise in population in India is nearly 18-19 million (just about one Australia every year).

¹²⁴ Based on the details presented under *Sector Overview*, Department of Higher Education, Ministry of Human Resource Development, Government of India: <http://education.nic.in/sector.asp>, p. 7. (accessed on July 30, 2007)

Of course, there are centres of excellence here and there, but overall quality in education remains an issue to be tackled.

- Participation ratios of the relevant age groups for elementary, secondary and higher education at 85 per cent, 39 per cent and 9 per cent (2003-04) respectively leave much to be desired. Related to the levels of participation is the ticklish issue of equity. One cause of low levels of participation is that potential students from disadvantaged groups of society cannot go for quality education easily, as their levels of preparedness let them down. When they succeed in getting into the system, it is usually the institutions of poor quality that accommodate them.
- Relevance of curricula is another challenge that Indian education has not been able to meet squarely yet, as a large majority of Indian institutions still hang on to dated curricula. Given that education/training is now seen as a tool of socio-economic well-being at the national level and as a means for quality life at the level of individuals, curricula have to promote not only the prospects of a better national economy, but also purposeful life skills.

3.3 Secondary schooling and the Indian labour market

3.3.1 *Introduction*

It is common knowledge that generally individuals with higher levels of education/training earn more than those with lower levels of education or none at all. In economic terms, therefore, a person with higher education does not only get better economic returns over his/her life time, but is also of higher economic value to the society, as he/she contributes more to social productivity than others. It is customary to estimate the returns on the levels of education in relation to their costs. The cost is thus seen as investment and what it yields over a lifetime provides for the estimation of rate of return to education.

Again, it is commonplace that generally the rates of return to education are positive everywhere. A society can afford to pay more to a better-educated individual, only if his/her contribution to economy is better than that of the one with a lower level of education. The implication of the positive rate of return is that investment in education is profitable and so it contributes to economic growth; and that a higher rate of return for a particular level of education implies that the education of that level contributes more significantly to the growth of economy than other levels of education.

Obviously, the level of education that entails a better rate of return is the type that the society should invest in. In actual practice, the relationship is not as simplistic as it reads here. For example, the effect of emphasis on different levels of education differs in relation to the stages of development an economy/country has reached.

At the earliest stages of development (the agricultural settings of rural economies), improvements in primary education and the number of workers with primary education correlate positively with the growth of GDP. As societies move to the stage of industrialisation, the workforce engaged in agriculture diminishes and that in industrial areas rises progressively. At this stage of economic development, it is the relative number of secondary school graduates that shows positive correlation with economic growth¹²⁵. And similarly, at still higher stages of economic growth, it is the proportion of higher education graduates that shows positive correlation with economic

¹²⁵ McMahon, W. (1998). "Education and Growth in East Asia", *Economics of Education Review*, Vol. 17 (2), pp. 159-172.

growth and development. With democratisation coupled with globalisation coming to the fore almost universally, the employment market is steadily crossing the national borders. Consequently, rates of return to investments in higher education in India¹²⁶ have generally been increasing in comparison with those in lower education (see Tables 3.10 and 3.11 below).

Without losing sight of this global scenario, our argument below is based on the view that today India encapsulates two economic entities—“India that is Bharat”¹²⁷. In the 1960s and 1970s, influenced by the Soviet model of socialist economy, India aimed at economic growth with public investments in the development of heavy industry protected by customs regulations and a simultaneous boost in agricultural production, which led to the Green Revolution. The accompanying weaknesses, however, lurked in inefficient and primitive industry together with a relatively large size of subsistence agriculture.

Preparing for changes in the late 1980s and certainly by the early 1990s, the scenario changed as the economy responded to the process of globalisation by opening up in the real sense for the first time after independence (i.e. 1947). Though this development has steered India’s progress into the new knowledge/information economy, the most significant factor that will promote and sustain this progress is the human capital that India can generate and invest in the years to come. Given the existing two facets of India—the India that lives in urban and industrial areas and the Bharat that is still bound to villages, both the higher-end and the lower-end human capital are required in the country concurrently. While the former is required for innovation, application and organisation so vital for an information/knowledge economy, the latter is required in semi-urban and particularly in rural areas for agriculture and the related productive enterprises¹²⁸ in such areas.

The above premise provides a framework for the following discussion on two related themes:

- i) the cost-benefit of the secondary level of education in India, and
- ii) the cost-efficiency of Open Schooling for this level as it pertains to India today.

The former theme is discussed in Subsections 3.4.2 and 3.4.3 and concluded in Section 3.5 of this chapter, while the latter theme has been taken up separately in Chapter 4.

¹²⁶ Carnoy, M. (1995). “Rates of Return to Education”, *The International Encyclopaedia of Education*, Pergamon, Oxford, UK.

¹²⁷ The expression is from the *Constitution of India*. India may be the only country that has two official names—India and Bharat. The latter has been derived from ancient Sanskrit texts. In today’s roadside discourse pertaining to the socio-economic developments as they obtain today, it refers to those aspects and people of India that relate to rural areas and have not visibly benefited from the fruits of independence—democracy, education, economic growth, reformative legislation, etc—the way the corporate sector that relates to urban areas of the country (called India) has.

¹²⁸ Subsistence agriculture on smallholdings, small-scale cottage industries, handicrafts, sericulture and horticulture, small-scale cooperative enterprises, etc.

3.3.2 Cost-benefits of education in India

It should be mentioned at the very outset that this brief study is handicapped for want of up-to-date data. The Report¹²⁹ of the Central Advisory Board of Education (CABE) Committee laments, "Unlike elementary education where comprehensive and reliable database has been developed, secondary education does not have such authentic data with annual updates". And the report advises that, "In order to develop a sound and dependable planning framework for secondary education, it will be necessary to develop Secondary Education Management Information System with disaggregated data at the state, district and block levels". Most studies pertaining to secondary education in India suffer from this handicap, so much that even the recent studies have to bank on old data. The advantage of such studies, however, is that they do indicate what has been happening over a period of time and what may be expected now and henceforth. Here, we begin with a profile of work participation as it obtained until the last decade.

Table 3.10 Work participation and the structure of Indian labour force— 1972/3-1993/4¹³⁰

<u>Work participation</u>	1972/3	1978/9	1983	1987/8	1993/4
Men	52.9	53.6	53.8	53.1	54.4
Women	27.8	29.0	29.5	28.1	28.3
<u>Structure of the workforce</u>					
Self employed:					
Men	60.1	58.0	55.9	54.5	53.7
Women	63.1	60.8	60.0	59.0	56.8
Regular salaried & wage workers:					
Men	19.8	18.3	18.1	18.2	16.7
Women	6.3	5.3	5.4	6.8	6.2
Casual labourers:					
Men	19.7	23.7	26.0	27.3	29.6
Women	30.6	33.9	34.6	34.2	37.0

Age: 15-59 years [Compiled from NSS Reports]

We notice that work participation has been increasing steadily, with the women labour force slightly more than half the strength of its male counterpart generally. Seemingly, the growth is not impressive, but considering the significant rise in the population during the period concerned, the overall steady rise (except the dip in 1987/8) is a positive development.

Secondly, the levels of self-employed and salaried and wage-workers put together have fallen uniformly over the period, except that in the latter category women work force recorded some recovery in late 1980s and early 1990s. This recovery may have its explanation in the expanded

¹²⁹ Report of the CABE Committee: Universalisation of Secondary Education (2005), Central Advisory Board of Education, Ministry of Human Resource Development, Govt. of India, New Delhi. p. 44.

[The Ministry of Human Resource Development constituted the Committee in Sept. 2004 to prepare a blueprint for universalising secondary education in India. It submitted its Report in June 2005.]

¹³⁰ Duraisamy, P. (2000). "Changes in Returns to Education in India—1983-94: by Gender, Age-cohort and Location", Centre Discussion Paper No. 815, Economic Growth Centre, Yale University, Connecticut. p. 22. http://www.econ.yale.edu/growth_pdf/cdp815pdf (accessed on July 16, 2007)

provision for lower education, especially for women, introduced in the 1970/80s after the adoption of the National Policy on Education-1968 as amended in 1976.

Thirdly, we notice that casual labour recorded a steady and relatively substantial growth during the same period; this may be attributed to the induction of new population groups (such as SCs/STs¹³¹, etc) into the component of labour market requiring unskilled labour on a large scale—as the traditional agricultural labour started migrating to industries, gaps were created in the space of agricultural labour, which came to be filled by the groups that were not in the labour force previously. We have yet to see the role of education in these developments. A look at the rates of return to education must provide some pointers in this regard.

Table 3.11 Trends in the returns (per cent) to education in India—1983-1993/4¹³²

Educational level	1983			1993/4		
	Total	Men	Women	Total	Men	Women
Primary (Classes I-V)	8.2	6.1	4.1	7.9	6.2	3.8
Middle (Classes VI-VIII) ¹³³	8.4	7.1	14.3	7.4	6.3	10.3
Secondary * (IX-XII)	13.7	13.2	23.8	13.8	12.6	25.5
College/University (Degree level)	11.6	12.2	9.5	11.7	12.2	10.3
Technical Diploma etc.	13.4	13.9	12.8	14.9	15.6	12.3

*Includes Higher Secondary level also

The figures in the above table indicate that until the middle of the last decade, the private rate of return per level of education increased with the levels of education uniformly among men as well as women until they reached the college/university level—the secondary level being the most rewarding of all the levels. The return to middle (i.e. upper primary) education is generally only marginally higher (in fact lower in the 1990s) than to primary education, except in the case of women, for whom it shows a significant rise in both the decades. And this trend holds also for the secondary (including the senior secondary) level, at which return to education for women is nearly (in the 1980s) and over (in the 1990s) twice as much as that for men. The overall comparison shows that up to the secondary level, the return for women is generally higher than that for men, and that the trend reverses for the higher and technical education. Looking across rural and urban areas an interesting “variation in the returns...[to be seen in these areas is that there are] higher returns to education in rural than in urban areas for primary and secondary levels and also for technical diplomas.... [On the other hand, the returns] for higher secondary and college education are higher for the urban compared to the rural residents”.¹³⁴

¹³¹ Scheduled Castes (SCs) and Scheduled Tribes (STs) are those categories of population among the Hindus, who have traditionally remained deprived, but the State is now providing them support for growth and development. [See footnotes 33, 34 and 35 also.]

¹³² Duraisamy, P. (2000). “Changes in Returns to Education in India—1983-94: by Gender, Age-cohort and Location”, Centre Discussion Paper No. 815, Economic Growth Centre, Yale University, Connecticut. p. 34. http://www.econ.yale.edu/growth_pdf/cdp815pdf (accessed on July 16, 2007)

¹³³ Middle level is the same as the Upper Primary level. Classes I to VIII make the Elementary level of education.

¹³⁴ Duraisamy, P. (2000). “Changes in Returns to education in India—1983-94: by Gender, Age-cohort and Location”, Centre Discussion Paper No. 815, Economic Growth Centre, Yale University, Connecticut. p. 16. http://www.econ.yale.edu/growth_pdf/cdp815pdf (accessed on July 16, 2007)

As for the female workforce exclusively, a study on women's labour market in India looks into the role played by education in the differential returns to men and women in urban parts of the country. It concludes "that women do suffer high levels of wage discrimination in the Indian urban labour market, but that education contributes little to this discrimination [and that] the wage-disadvantage effect of women's lower years of education than men is entirely offset by the wage-advantage effect of women's higher returns to education than men's. [It is also indicated] that, for both men and women, returns to education rise with education level, confirming the findings of other recent educational rate of return studies in India and elsewhere"¹³⁵.

The equity issue in India pertains not only to comparative returns to education for men and women, but also to such returns for different social and religious groups comprising the population. The levels of education among and so the earnings of different groups of population have been significantly different traditionally. In spite of the continued efforts to bridge the gaps since independence, the disparities persist even today.

As reported by Bhaumik and Chakrabarty¹³⁶ (see Table 3.12 below), their 1987 sample included 24,529 Hindus, 3,548 Muslims, and 2,641 people of other religious groups. Of the Hindus, 4,596 were SCs/STs while 19,933 belonged to other castes. In their 1999 sample, there were 22,773 Hindus, 3,273 Muslims and 3,259 people from other religions. Of the Hindus, 4,563 were SCs/STs, 6,610 were OBCs¹³⁷ and 11,600 belonged to other castes. Hindus and Muslims are the two largest religious groups, and others like Buddhists, Christians, Jains and Sikhs together make a small proportion of the total population. All the subjects belonging to these smaller religious groups were put together in the category "other". Earnings include all types of wages, salaries and income in kind, and all earnings have been expressed in terms of the 1999 prices. The investigators used the consumer price index for industrial workers to convert 1987 earnings into "real" values that are comparable with the 1999 earnings of the individuals.

¹³⁵ Kingdon, G. G. & Unni, J. (2001). "Education and Women's Labour Market Outcomes in India", *Education Economics*, Vol. 9, Issue 2, August 2001, pp. 173-195.

¹³⁶ Bhaumik, S. K. & Chakrabarty, M. (2006). "Earnings Inequality in India: Has the Rise of Caste and Religion based Politics in India had an Impact?" Discussion Paper No. 2008, The Institute for the Study of Labor (IZA), Bonn, Germany. [Provisional data]

¹³⁷ OBCs stands for Other Backward Classes, i.e. Backward Classes other than Scheduled Castes and Scheduled Tribes. In the 1987 Study, the "other" castes included the Other Backward Classes (OBCs), which gained socio-political recognition only after the adoption of the Mandal Commission's Report in 1990. Accordingly, in Table 3.12, the 1987 data shows the caste of an individual as SC/ST or 'other' (i.e., higher castes). The 1999 Study classifies an individual as SCs/STs, OBCs or "other".

Table 3.12 Earning differences within and across the various groups of population

1987						
	Caste			Religion		
	SC/ST	OBC	Other	Hindu	Muslim	Other
Illiterate	325.87 (239.24)	-	326.74 (361.59)	326.36 (314.31)	322.36 (245.94)	355.91 (231.24)
Primary education	436.27 (262.91)	-	449.57 (282.82)	446.52 (278.42)	439.70 (265.54)	508.64 (323.05)
Middle (i.e. Upper Primary) education	493.15 (275.13)	-	538.55 (339.03)	530.33 (328.80)	529.77 (304.94)	589.32 (348.23)
Secondary education	671.61 (382.86)	-	810.68 (575.10)	798.60 (562.36)	740.05 (400.21)	802.59 (409.31)
General tertiary	1006.90 (498.51)	-	1130.61 (690.95)	1124.42 (683.10)	987.68 (520.75)	1137.25 (859.28)
Professional education	1244.63 (597.03)	-	1713.32 (812.47)	1702.92 (810.84)	1504.09 (685.10)	1625.36 (968.68)

1999						
	Caste			Religion		
	SC/ST	OBC	Other	Hindu	Muslim	Other
Illiterate	484.46 (344.62)	412.27 (301.95)	508.15 (347.29)	466.04 (334.10)	454.29 (287.39)	526.26 (451.26)
Primary education	608.60 (391.44)	549.09 (393.96)	642.47 (441.18)	596.99 (411.20)	557.73 (429.22)	646.97 (403.36)
Middle (i.e. Upper Primary) education	707.28 (487.69)	648.00 (507.23)	739.54 (544.17)	700.21 (521.14)	649.84 (476.80)	807.64 (470.16)
Secondary education	998.03 (757.58)	880.67 (589.73)	1089.13 (706.06)	1012.34 (686.13)	892.28 (570.31)	1152.69 (763.64)
General tertiary	1443.38 (878.82)	1279.46 (831.49)	1605.10 (1008.62)	1520.28 (971.56)	1350.15 (929.27)	1588.35 (947.92)
Professional education	2260.39 (857.46)	2352.23 (190.20)	2696.54 (1265.94)	2615.09 (1245.83)	2610.15 (1130.69)	2747.68 (1003.67)

Note: i) The values within parentheses are standard deviations.

Some of their observations and findings are as follows:

- Other castes (sub-categories among Hindus) had higher earnings than the SCs/STs during 1987 as well as 1999.
- In 1999, the OBCs' earnings were lower than those of the "higher" castes and the SCs/STs, except at the professional level in the latter case.
- Generally, Muslims had lower average earnings than the people of other religions.

- People belonging to the “other” religions had higher earnings than the Hindus in 1987 as well as 1999. *This difference may be attributed to the relatively higher levels of education among Christians, Jains, etc, who have traditionally depended on the respective community run private educational institutions, which are better organised and adequately funded (by self-generated funds) in comparison with the State run institutions.* (Added comment in italics).
- Earnings of all castes and religious groups increased between 1987 and 1999. This is said to be consistent with the 2- 4 per cent growth in per capita GDP during this period.
- Of the Muslim sample less than 10 per cent of the women reported earnings, while the corresponding figures for the Hindus were over 15 per cent and over 25 per cent for the “other” religious groups. This indicates relatively lesser participation of Muslim women in women’s labour force. *The differences in the levels of participation in labour market may be attributed to the levels of educational attainment among the women within the different groups.* (Added comment in italics.)
- As for the relative educational attainments among the castes, overall SCs/STs were less educated than the people of other castes. Larger numbers of the people belonging to the “higher” castes (48 per cent with general tertiary education in 1999) were much more educated than people belonging to OBCs (25 per cent) and SCs/STs (17 per cent).
- And the figures for relative educational attainments among religious groups showed that on average Muslims, 21 per cent of whom had tertiary education, were less educated than both Hindus (35 per cent of whom had tertiary education) and other non-Hindus (40 per cent of whom had tertiary education).

We notice that Indians get divided into three distinct groups. Those who are in the highest bracket of earnings are professionals, who have higher levels of education invariably. All of them find a place in the labour market. Within this bracket, caste and/or religion do not seem to affect one’s participation in the labour market significantly, but there are minor differences in their levels of earning. It is primarily the level of educational attainment that is responsible for high returns in this case.

Those in the lowest bracket of earnings are the unskilled workers. Their educational attainments are low and their numbers large. Their earnings are low, partly because jobs requiring unskilled labour have low returns, and partly because of the imbalance in supply and demand—they are too many for not as many jobs. Yet, differences of caste and religion show differences, though small, in the returns from the market.

The third group lies between the groups that have the highest and the lowest returns in the labour market. Their educational attainments are immensely varied on account of their family backgrounds, the institutions where they study and the courses/subjects they study. Members of this group work at different places and levels, very often decided by chance, and also, to some extent, by the caste or religion they belong to.

3.4 Cost-benefits of secondary education: the Indian case

The overall conclusion is that earnings definitely increase with rises in educational levels for all—men and women, rural and urban work force, varied castes and religious groups—and all along over a period of time. Such positive correlation between educational levels of the work

force and their earnings suggests that differences in earnings across worker types are influenced by their educational attainments.

Furthermore, returns to education relate to the available subsidies and the level of universalisation achieved at a particular level of education. The provision of free education up to 14 years of age in India has contributed to high private rates of return at the primary stage of education especially in rural India, where primary education is available through government-run schools mainly. This advantage is lost gradually with the rise of saturation levels at this stage. Thus while subsidies at a particular stage of education provide for high private returns, rising levels of universalisation of education at that very stage lower private returns gradually. At a given level of education, the two factors, subsidy and universalisation, influence private returns to education inversely.

Table 3.13 **Studies on private rates of return in India**

S. No.	Year	Primary	Middle (i.e. Upper Primary)	Secondary	Higher Secondary	Degree	Professional degree
1	1967 ¹³⁸	23.0	13.0	10.0		8.1	
3	1972 ¹³⁹	16.5	14.0	10.4		8.7	
5	1987 ¹⁴⁰	7.82	8.54	-ve	2.4	6.82	
6	2000 ¹⁴¹	7.9	7.4	13.8		11.7	14.9

The above table sums up the Indian scenario over the decades. Returns to primary and middle (i. e. upper primary) education were high in the 1960s and 1970s when access to these levels of education was very low in India and subsidies for these levels were gradually being put in place. By the turn of the century, the situation reversed in favour of secondary education, as the degree of universality at the primary and middle levels had increased substantially by then.

Global emphasis on and the related drive for the socio-economic relevance of education stems partly from the lessons learnt from the levels of economic growth experienced by countries with high levels of participation in education and partly by the desire (of aspirants) to achieve the quality of life enjoyed by such countries. Accordingly, the main cause of the tremendous pressure at all the levels of education in India is the mounting urge among individuals to pursue schooling as it promises better jobs, better income and improved quality of life. The state, partly as a collectivity of these very individuals and partly as the body responsible for organising and regulating their activities, looks for ways to make such schooling possible and affordable for the masses in order to effect overall economic development of the country, removal of inequities and eradication of poverty.

¹³⁸ Nalla-gounden, A. M. (1967). "Investment in Education in India", *Journal of Human Resources*, 2 (3) (Summer), pp. 347-358.

¹³⁹ Blaug, M. (1972). "Educated Unemployment in Asia: A Contrast between India and the Philippines," *The Philippine Economic Journal*, Vol. 11, pp. 33-35.

¹⁴⁰ Tilak, J. B. G. (1987). *Economics of Inequality in Education*, Sage, New Delhi. P. 52/85.

¹⁴¹ Duraisamy, P. (2000). "Changes in Returns to Education in India, 1983-1994: by Gender, Age-Cohort and Location", Centre Discussion Paper No. 815, Economic Growth Centre, Yale University, Connecticut. p. 34. http://www.econ.yale.edu/growth_pdf/cdp815pdf (accessed on July 16, 2007)

Superficially, it would seem that opening more and more schools, colleges and universities is the way forward, but for sustained and long-term benefits, states must resolve the issues that have implications for long-term planning, resource mobilisation and utilisation of the products of educational systems which they may establish. The issues are fundamental in nature: How does education contribute to economic growth? What type of education is most beneficial? What levels of education should be emphasised for which purpose, at which location and when? And above all, what criteria may be used to choose an educational system, and once chosen, how may it be expanded and sustained in the face of human resource shortages and/or dwindling financial resources for the purpose?

India, like most developing countries, looks for answers in the experiences of developed richer countries, which invariably point to a strong correlation between their workforce with higher levels of formal education/training and their economic growth/development. The other related noticeable fact is that all the developed countries invest more education not only to expand the size of their educated work force, but also to steadily provide still higher levels of education/training to those of their workforce that are already educated/trained. The latter invariably focus on processes of better management, innovations, application of innovations to productivity, sensing the emerging changes in trade and commerce and how to manage them.

3.5.1 The multiple roles of education

Further lessons from countries like Japan (for example, their indigenous research and development-based in-service training which their industries provide to their workers enabling them to work on new industrial products and for higher levels of production, while retaining their loyalties) help in identifying the multiple roles of education and training in the process of increasing productivity. Thus, education is a commodity that provides for economic growth and development at one level and functions as a change agent at the other, while at the institutional level it provides for sustained development integrated with work satisfaction and improved loyalty among the work force. Clearly, human capital impacts positively not only the direct productivity rates, but also (and more importantly) the productive capabilities of the work force and the mechanisms of change¹⁴².

India needs to provide for both the levels and also for institutional settings to sustain growth and development in a fast changing and competitive global market. The high-end human capital is required to innovate, foresee emerging changes and manage them efficiently (in urban and industrial India), and the lower-end human capital to boost growth at the lower end of economy, especially in rural and agricultural settings (i.e. in Bharat). There are positive indications in relation to the former, as evidenced by around nine per cent annual growth¹⁴³ in recent years effected mainly by a healthy growth in the service and industry sectors, but the latter is not encouraging as evidenced by the plight of farmers¹⁴⁴ all over the country.

Growth in the service sector is primarily driven by developments in ICT applications and in the industry sector by the application of such scientific knowledge and experience as are required by the industries dependent on scientific innovations and their applications. This establishes the

¹⁴² Sorensen, A. (1999). "R&D, Learning and Phases of Economic Growth", *Journal of Economic Growth*, Vol. 4, pp. 429-445.

¹⁴³ *The Economist*, Vol. 385, No. 8549, October 6th-12th, 2007. p. 111.

¹⁴⁴ For the past few years now the Indian press has been reporting suicides committed by frustrated farmers. Among the various ways out, improved government funding for agriculture is seen as a possible solution.

importance of higher education, especially in management- and sciences-related disciplines, as they provide for innovating technologies, bringing in new applications of the existing technologies and establishing new norms and systems of management that are more effective and efficient. The workforce with such education not only increases its own productivity, but also becomes instrumental in increasing the productivity of those workers who work at other, more importantly at the lower, levels. Further, it is higher education that enables the workforce to see what non-human factors need to be put in place to materialise the stipulated growth—infrastructure¹⁴⁵, for example. Thus higher education goes beyond increasing human capabilities, as it also contributes to the environment required to put those capabilities to gainful use.

3.5.2 The impact of lower levels of education

Such significance of higher education brings into sharp focus the twofold significance of the lower levels of education:

- i) they have a positive developmental role in rural and semi-urban areas as they improve the skills and attitude of workers, resulting in overall higher levels and better quality of production per worker, and
- ii) they build a strong and vast base for the educational pyramid enabling it to have a large and quality top required for helping lower level workers to achieve higher levels of production and for effecting innovations in the mechanisms as well as management of quality production.

With this in view and considering that the vast majority of the potential human capital resides in rural and semi-urban areas of India, the significance of the lower levels of education (including secondary education) cannot be over emphasised. The impact of higher education as seen in the developed areas of the country is discernible in the rural and semi-urban areas too, but for the size of the country, unless these areas in large numbers are able to develop their own human capital within their own locales, growth and development will come to them dangerously slowly.

Thus, lower education for the majority of Indians deserves emphasis on two counts:

- i) it is required for the immediate purpose of improving productivity and growth in the existing rural and lower-end enterprises¹⁴⁶ as they are, and
- ii) it is a necessary condition for establishing viable higher education activities in the localities concerned as elsewhere.

¹⁴⁵ A major cause of brain drain in India is the lack of the required level of infrastructure. Though the earlier planners visualised the need for human resource development, the corresponding need for infrastructure was not. Even today many world-class graduates from IITs and IIMs prefer working in countries that provide the infrastructure and working conditions that suit/attract them. Urge for higher earnings are not the only cause of such migration.

¹⁴⁶ Subsistence agriculture on smallholdings, small-scale cottage industries, handicrafts, sericulture and horticulture and small-scale cooperative enterprises.

Apart from these reasons for investing in secondary education in India, there is yet another issue which is also essentially economic, though overtly it appears to be more social than anything else—the issue of equity. There are the talented rural poor making a special group of potentially rich human capital, but likely to get wasted if not attended to and also the other no less important a group comprising out-of-school children whose potential remains completely unknown and wasted if not attended to. For the former, the Central Government introduced what are called Jawahar Navodaya Vidyalayas (see Subsections 3.3.2 and 4.4.1) and for the latter the National Open School, now the National Institute of Open Schooling (see Subsections 3.3.2 and Chapter 4).

4 OPEN SCHOOLING IN INDIA: THE NATIONAL INSTITUTE OF OPEN SCHOOLING, NEW DELHI

4.1 The context of Open Schooling in India

Though the realisation emerged slowly over the years, it was clear long before the National Policy on Education-1968 was amended in 1976 that:

- i) the then existing conventional institutions and the systems they followed were not designed and could not be geared to meet the challenges facing secondary education, and
- ii) no amount of conventional supplementary support was likely to meet the range of those challenges vis-à-vis the diversity of the target groups that abound within the size of operations that constitute education in India.

As the said challenges continue to persist (see Chapter 3, Subsection 3.3.3), it was/is reasonable to look for alternative modes of education (see Subsection 4.1.3) rather than for complements or supplements to what has been in place for decades. A few instances of such initiatives introduced in the last century have been touched upon in Subsections 3.3.2 (Chapter 3) under the headings Education on the Concurrent List (1976--) and Post-1992 Scenario. Building on that experience, some of the new alternatives and initiatives introduced so far in this decade are worthy of a mention here:

- Sarva Shiksha Abhiyan¹⁴⁷ (SSA) was launched in 2001 to universalise quality elementary education all over the country.
- 2002 saw yet another Constitutional Amendment to make free and compulsory education a fundamental right¹⁴⁸ in the Indian Union.
- Educational Cess was levied with effect from 2004 to mobilise additional funds to help the Government to fulfil the commitment of universalising quality education at the lower levels.
- EduSat, a satellite dedicated to educational programming, was launched in 2004.

4.1.1 Need for Open Schooling in India

Open Schooling as an effective alternative modality of educating/training at the secondary level attracted the attention of planners partly because of the immensity of requirements¹⁴⁹ at this level and partly because secondary education is an end and a beginning at the same time. It marks the end of the first phase of education allowing the young graduates to enter the employment market and also serves as a gateway to higher education which provides for a much better quality of life—such a gateway has to be wide and ever open.

Secondly, the Sarva Shiksha Abhiyan (SSA) is promising an exponential¹⁵⁰ rise in enrolments at the secondary level—the annual growth rate of enrolment at the secondary level during the 1990s

¹⁴⁷ It is a Hindi expression meaning “Education for All Campaign/Movement”.

¹⁴⁸ The amendment has not come into force yet.

¹⁴⁹ In the 2001 Census, the population of the 14-18 years age group was estimated to be 88.5 million and the corresponding enrolment figure was 31 million, i.e. 65 per cent (the corresponding estimated figure for 2003-04 was 61 per cent) of the relevant age group was not in school.

was 2.83 per cent, rising to 7.4 per cent per annum during 2000-2003. This figure is going to rise significantly when the full impact of Sarva Shiksha Abhiyan is felt through the process of achieving the goal of universal elementary education, for which the places available at the secondary level must multiply in good time to face the impending deluge.

Thirdly, it is estimated¹⁵¹ that ODL provision at the level of higher education, comprising 13 dedicated (single mode) open universities and over 100 dual mode higher education institutions, caters to only 20 per cent of higher education students. Only five percent of the Indian population has higher education qualifications. Increasing the rate of higher education would contribute to the country's economic, political and social strength. One way to increase enrolment in higher education is to increase secondary level enrolment, which is where open schools such as NIOS can play an increasingly important role.

Fourthly, all the expansion in and the inclusive approach being followed to expand coverage at the secondary level of education notwithstanding, it is not possible to involve the entire relevant age group in the conventional type of scheduled day-time schooling, as significantly large numbers of potential secondary level students are engaged in productive labour in agriculture in rural areas and in various gainful activities in semi-urban and urban areas. Invariably, they belong to lower income and/or poor families.

It is, therefore, not without reason that, as one of the major and tested alternative modalities of education to meet the types of challenge outlined above (to the extent that it can), the open distance mode of education/training has appealed significantly to planners. Accordingly, the already designed and established ODL system in the form of the National Open School (NOS) (see Subsection 3.3.2) was further upgraded in 2002 with a broader mandate to be an apex institution now called the National Institute of Open Schooling (NIOS). To augment the efforts of NIOS, many other State Open Schools have been established. As indicated above and argued elaborately in Subsection 4.1.3, it is an alternative mechanism/mode, because it does not complement what conventional secondary schools are doing, nor does it serve as a supplement to their efforts. It has evolved over a period of time with diverse policy prescriptions piling one on the other, giving it a unique profile as a secondary level institution that has a distinct mandate of its own.

4.1.2 Policy prescriptions and commitments for the secondary ODL operations

In order that the National Open School (NOS) (now NIOS) may successfully address the multi-faceted challenges before the secondary education in the country, significant policy¹⁵² prescriptions (*emphases added*) have been provided for it to materialise its mandate boldly and consistently.

¹⁵⁰ *Improving Access to Secondary Education* in Dept. of School Education & Literacy, Secondary Education Statistics: http://education.nic.in/secedu/sec_stats.asp

¹⁵¹ 'Planning & Management Issues' in the *Report of the CABE Committee on Universalisation of Secondary Education*, (2005), Ministry of Human Resource development, Government of India, New Delhi, p.48.

¹⁵² Excerpts from *Reaching the Un-reached—National Institute of Open Schooling: 1989 to 2004*: National Institute of Open Schooling, New Delhi (Forthcoming).

National Policy on Education (NPE) 1986 (and revised in 1992)

- The National Open School (NOS) will be strengthened and open learning facilities extended in a phased manner at the secondary level in all parts of the country.

Programme of Action (POA) (1992) in relation to NPE-1986 as revised in 1992

- The Open Schooling System
 1. NOS will be strengthened and developed to widen access to education at the secondary and higher secondary levels. Efforts will be made to establish Open Schools in different states so that secondary education is significantly expanded through different regional languages.
 2. The possibility of launching vocational education programmes through open learning systems will be explored. For this purpose, meaningful linkages will be established with workstations, industries and other organisations.
 3. The possibility of setting up a National Consortium for Open Schooling will be explored in order to initiate coordinated steps in such areas as policy issues, priorities, long-term national and state needs, establishment of resource centres for development of materials, development of human resources for the open learning system, and monitoring and evaluation of its performance.
- Employment-related education
 1. The open learning system at the secondary and tertiary levels will focus attention on education and training in areas related to employment and self-employment.....
 2. The open learning system will take steps to meet the continuing education needs of the manpower already employed in different sectors.....
- Vocational education through Open Learning
 1. Vocational courses will be offered by NOS in collaboration with supporting partners, organisations and institutions working in the vocational education field and having basic infrastructural facilities...

Planning Commission's Core Group on Open Learning (February 1992)

-open education can play a significant role in spreading relevant education in a big way and help gear up rural and urban economies by increasing productivity.
- The NOS would have to be strengthened for meeting the educational needs of (a) Open Secondary Education, (b) Open Higher Secondary Education, (c) Open Vocational Education, and (d) Open Upper Primary Education, the last on experimental basis. A focus on out-of-school urban, rural and tribal youth, adolescent girls, women, and the rural farming communities in general is essential for linkages between education and development.
- State Boards of Secondary/Higher Secondary Education have accepted the need for an open channel of education. Each State/UT may be required to set targets in accordance with the needs, available facilities and facilities to be provided.

- Business, industry and professional organisations may be called upon to set up their own Education and Training Units with a view to training, in collaboration with open education institutions, the manpower required according to their own emerging demands....Open Universities and Open School Organizations may guide the preparation of course-materials and techniques of training under appropriate contracts.
- Various Ministries involved with imparting training and providing sector-wise manpower need to interact and build linkages for evolving open education and training programmes..... Each Ministry may contribute from its budget an appropriate percentage for the purpose to the Open School/Open University selected as a collaborator. In view of the complexity of the task of coordination, it is best to entrust it to the Planning Commission.
- There should be a large scale Open Learning System (OLS) teacher training programme, especially for meeting the urgent requirements for trained primary and secondary teachers in the tribal education programme of the North Eastern States..... IGNOU and NOS may prepare a programme of induction training for teachers in remote geographical areas where the need is most urgent.
- Since the Open Learning System consists of a cluster of innovations as regarding planning, management, financing, networking, contact-centres, packaged materials containing both print and electronic media, localised supervision of implementation and achievement efforts through Education Complexes, use of dialectic method of teaching-learning incorporating basic principles of andragogy, community support and so on, all the personal engaged in planning process of these varied innovations would require intensive training. These training programmes should be planned and organised by NOS, IGNOU, YCMOU and other organisations that have acquired capability of launching and managing educational innovations and changes. Adequate financial support for this programme would have to be provided without delay by pooling the financial resources of the Government and interested agencies.

Eighth Five Year Plan-1992-97

- ...A combination of vocational and academic courses would be offered at the secondary stage with open education (OE) as an important channel, preparing the students for wage employment and self-employment....
- A well-defined open learning system will be developed with a network of educational opportunities relevant to the needs and circumstances of learners, especially girls, women, SCs/STs, and the poor, the unemployed and the untrained. The major thrust of OLS would be on the acquisition of life-skills, vocational skills, directly contributing to productivity and inculcation of habits of self-learning.
- Open Schools would involve themselves in the post-primary stage of education on an experimental basis to provide wider access to children who are working or not in a position to attend regular schools due to socio-economic or any other reasons.
- The NOS will continue its existing programmes and revise the syllabi and textbooks for the secondary and senior secondary courses and bring out fresh sets of instructional materials for the bridge courses. It will develop and introduce Vocational Courses especially in the areas of health, agriculture and rural development in collaboration with the departments concerned. The coverage is

expected to increase progressively with registration of more accredited institutions¹⁵³. It should also coordinate and standardise the work of similar State-Level Open Schools. The setting up of a National Consortium of Open Education to facilitate accreditation of courses and maintenance of quality through a process of networking and evaluation should be pursued by NOS in cooperation with the Indira Gandhi National Open University (IGNOU).

CABE Committee on Distance Education (February 1994)

- A National Data base on Distance Education to be established at the tertiary level by the DEC (IGNOU) and at the school level by the National Open School, which should be linked to international databases.
- An Integrated System of Distance Education from the School to the tertiary level to be pursued.
- Suitable norms should be evolved and guidelines prepared by IGNOU, UGC and NOS for the establishment of new Distance Education Institutions and conversion of the existing correspondence institutions to the distance education mode.
- State level coordination between distance education institutions within the State should be the responsibility of the State Council of Higher Education. UGC, IGNOU, and NOS should take the responsibility for regional cooperation which would include transfer and sharing of course materials, joint development of courses and training of staff.
- The Open Learning System should give high priority to taking steps to meet the continuing education needs of the manpower already employed in different sectors by developing programmes in close cooperation with the employing organisations concerned.
- In accordance with the recommendations of the Planning Commission's Core Group on Open Learning made in 1992, the National Open School should be strengthened for meeting the educational needs of (a) Open Secondary Education, (b) Open Higher Secondary Education, and (c) Open Vocational Education.
- Urgent steps to be initiated towards the creation of an educational broadcast system in view of its vital importance, particularly to support distance education.

Ninth Five Year Plan 1997-2002

- Distance Education will be broad-based by providing wider responsibilities to National Open School and the State Open Schools. These will be in the areas of elementary education, vocationalisation of education for neo-literates, dropouts, secondary students and adult population, including working women. Special initiatives will be taken to derive full advantage from the state-of-art Information Technology (IT).

¹⁵³ NIOS uses various institutions as Study and/or Work Centres for its students. These institutions are identified on the basis of their fulfilling various criteria set by NIOS. Called the Accredited Institutions, they are mostly the conventional secondary/higher secondary schools and vocational institutions spread all over the country.

Tenth Five Year Plan (2002 to 2007)

- In order to meet the educational needs of those who have not been able to enroll themselves in the formal system, opportunities have been provided through the National and State Open Schools utilising contact centres and multi-media packages. (para 2.3.8)
- The major thrust in the Tenth Plan, thus, is to meet the increasing demand for secondary education. The Government has to play a greater role to encourage opening of new secondary schools, expansion of the capacity of existing schools including double shifts, upgrading of upper primary schools in backward, un-served and under-served areas, as also expansion and diversification of Open Schooling and distance education system (para 2.3.14).
- During the Tenth Plan, the National Open School (NOS) would intensify efforts to ensure that the open school system is for the under-privileged groups. A scheme to reimburse to the NOS the fees incurred on scheduled caste/tribe students, girls and physically challenged students is also on the anvil. The NOS will also be restructured to affiliate regular schools/centres, which offer NOS curriculum as an alternative to the curricula of other School Boards. The nearly 1,200 study centres are proposed to be increased by around 15 per cent per year.The NIOS(should)implement the scheme of “On-Demand Admissions” and ‘On-Demand Examinations’, which give flexibility to the students to take admissions and examinations during mid-sessions. (para 2.3.16).

4.1.3 Open Schooling as an alternative schooling system

The foregoing details elaborately outline the context and the purpose of Open Schooling for the secondary level of education in India. Broadly, the context is that of educational deprivation, lack of access and funding, issues of equity and programming, and development on the one hand, and on the other that of the State’s commitment to overhaul the situation as soon as possible and at as low a cost as possible. Further, it should be clear why it is seen as an alternative system—it is to cater to such a clientele as is not addressed by the conventional system, its products, programmes and processes too differ accordingly, and it is to fill up the curricular gaps left wide open by the conventional schooling systems.

In India, Open Schooling has not been adopted exclusively as a complementary schooling system (i.e. to complete what the conventional schools leave half/partially done; e.g. to help conventional school failures to re-sit and complete their courses). Nor is it a supplementary schooling system (i.e. to support the conventional schools in what they are doing; e.g. to register those who fail to enter conventional schools and provide them those very courses/subjects as are available at such schools. Instead, it has been chosen for the cost advantages it is supposed to offer, the operational flexibility it can accommodate, the curricular innovations and diversity it will allow and above all the extensive reach it will provide to cover immensely diverse clientele. It is being visualised as a major means in the process of facilitating inclusion, modernising educational methodology, diversifying secondary level curricula and universalising secondary education in India (see Subsection 4.1.2).

To meet this objective, the State Policy allows immense scope for its operations and in return it is expected to fill a variety of gaps caused by educational deprivation over the centuries. That the State is determined to make it work is obvious from the convergence of the policy statements

originating from diverse sources (see Subsection 4.1.2). What may be the measure to rate the success of this alternative system?

A straightforward answer is to go to the conventional secondary schooling for a comparison. Within the Indian conventional system, we may consider at least two distinct cases for such a comparison. In line with general norms, a dependable indicator of success in the process of schooling is the throughput rate at the level concerned. Generally, the throughput rates at the 8th and 9th standards are said to be more than 90 per cent. At the Secondary Board Examinations for the 10th standard, however, the rate falls below 50 per cent. Thus the overall throughput rate is below 40 per cent¹⁵⁴. Then there is the case¹⁵⁵ of Kendriya Vidyalayas (Central Schools), which show throughput rates of over 90 per cent generally. A comparison of the throughput rates of the Open Schooling system with these two cases will show how well it is doing on a conventional scale of measurement. Its position on such a scale, however, will unfold only a part of the story for several reasons.

- Its success in serving the socio-developmental purpose, as per its mandate, cannot not be assessed by its throughput rates only.
- In pursuit of the goal of universal secondary education, apart from the problem of inadequate provision and infrastructure and the diverse compulsions faced by the potential secondary students, the issue of quality in the teaching-learning transaction too is a major concern. To replicate the same/similar recruitment process as practiced in Kendriya Vidyalayas or Jawahar Navodaya Vidyalayas and appointment of equally qualified teachers, with full salaries and benefits, in the Open Schooling system all over the country is not practical within the outlay presently available for the purpose.
- There is a vast difference between the students of the Open Schooling system and those who enter Central Schools—most of whom are the children of Central Government employees with a reasonably strong family background/environment that favours pursuit of education. None of them is a first generation learner or an earner either.
- Excessive emphasis on and predominance of academic components in the conventional secondary level curricula may show the distance learner in poor light.

The success of the Open Schooling system has, therefore, to be measured not only on the basis of its throughput rates, but also on the extent of the socio-economic and developmental purpose it serves (see Subsection 4.3.6).

4.2 Place and role of ODL and NIOS

At the school level, the genesis of ODL operations in India may be traced to the introduction of correspondence courses at the matriculation level (the tenth and the terminal year of high school

¹⁵⁴ ‘Planning & Management Issues’ in the *Report of the CABE Committee on Universalisation of Secondary Education*, (2005), Ministry of Human Resource development, Government of India, New Delhi, p.49.

¹⁵⁵ Lack of appropriately qualified teachers in most schools is said to be a major cause of this situation. Central Schools are known for their process of recruitment and quality of their teachers.

system) by the Board of Secondary Education, Madhya Pradesh in 1965¹⁵⁶. Various other states like Rajasthan, Uttar Pradesh and Orissa followed suit. The curricula, the year-end matriculation examination and certification modalities were exactly the same as applicable to day schools—it was a “supplementary” system. Correspondence students would get the course materials, no different from text books in format and intent, at the time of registration and then they were left to themselves to prepare for the examination.

The Central Government showed its interest in the process much later, when in 1979, the Central Board of Secondary Education, New Delhi, set up an Open School (with the provision of open entry, flexible choice of courses and flexibility in the duration for course completion) as an experimental project—this was an initiative to move towards an “alternative system”. By this time both the Central and the State Governments had realised that alternative schooling systems were the only answer to the three-fold challenge articulated in the National Policy on Education (NPE) 1986/1992:

- access had to be increased exponentially,
- students had to be retained on courses once they were registered, and
- they had to be supported to complete their courses successfully.

Having felt the growing pressures from the out-of-school children, adults coming out of the Total Literacy Campaigns and Post Literacy Programmes and the convincing results of experimentation under the Open School Project for ten years, the Ministry of Human Resource Development, Government of India, wound up the CBSE Open School Project to establish the National Open School (NOS) in 1989. In 1990, through the Government Resolution¹⁵⁷ No. F.5-24/90 Schedule 3, dated 14 September, 1990, NOS was vested with the authority to register, examine and certify students registered with it up to pre-degree level of education. This way NOS came to have two main functions: function as a school, i.e. register students, offer courses and arrange educational transactions like other schools in the country and also function as a School Board to arrange the conduct of public examinations for the secondary and higher secondary levels and the award of certificates for its students.

4.2.1 NIOS becomes an apex body

In July 2002, NOS was upgraded to function as a national apex body for Open Schooling in the country. It was given a new name, the National Institute of Open Schooling (NIOS), and also a new mandate¹⁵⁸ to provide relevant continuing education at school stage up to the pre-degree level through the Open Distance Learning System as an alternative to the formal system and to prioritised client groups, in pursuance of the normative national policy documents and in response to the needs assessment of the clients, and thus to make its contribution to:

- universalisation of education,
- greater equity and justice in society, and
- the evolution of a learning society.

¹⁵⁶ This is just *three* years after Delhi University introduced Correspondence Courses at the degree level for the first time in the country.

¹⁵⁷ *Gazette of India, October 20, 1990*, Government of India, New Delhi.

¹⁵⁸ *Framework and Networking System for Formulation of Educational Programmes, Monitoring of their Implementation and Evaluation in the Context of Open Schooling*, NIOS, New Delhi, p. 9.

As an apex body, while continuing to function as an open school itself, NIOS functions as a resource organisation for all the States and Union Territories¹⁵⁹ in the country. Besides material support, it arranges consultancy and advocacy programmes for them. So far, 10 States have set up their State Open Schools and another eight are in the process of doing so.

4.2.2 Functions of NIOS

Apart from its functions described above, NIOS caters to the educational needs of five distinct clientele groups using the open distance modalities in various combinations:

1. Open Basic Education (OBE) courses cater to children (up to 14 years of age), adolescents and adults. Depending on the entry behaviour of the learners, they may work on courses to prepare themselves for levels equivalent to standards 3, 5 or 8 of the formal system of education. NIOS implements these courses through about 250 voluntary agencies and Zila Saksharta Samitis (District Literacy Committees). NIOS provides the study materials, orientation to resource persons and joint certification, while the said agencies provide local study centres and other facilities.
2. Secondary education (high school) courses prepare learners for the Secondary School Certificate.
3. Senior/higher secondary courses prepare learners for the Senior Secondary School Certificate.
4. Vocational education courses in agriculture, business and commerce, engineering, technology, health and paramedical education, home science, hospitality, teacher training, and computer and IT applications prepare learners for appropriate certification leading to entrepreneurship and employment in relevant fields.
5. Life enhancement (i.e. enrichment) courses.

4.2.3 Secondary level courses and subjects offered by NIOS

A significant innovation in the choice of subject combinations introduced by NIOS is that vocational subjects are taken at par with academic subjects. So a student may take English, two academic subjects and two vocational subjects to claim a secondary or a senior secondary certificate. The subjects¹⁶⁰ currently available for the secondary and senior secondary certificates through NIOS are:

¹⁵⁹ At present Indian Union comprises 29 States including Delhi (governed by elected Governments) and 6 Union Territories (governed by the Central Government).

¹⁶⁰ *NIOS at a Glance*, (2006), NIOS, New Delhi. p. 23.

Table 4.1 Secondary and senior secondary subjects available at NIOS

Subjects available at the Secondary Level	Subjects available at the Senior Secondary Level
Language Subjects	Language Subjects
1 Assamese	1 English
2 Bengali	2 Hindi
3 English	3 Urdu
4 Gujarati	
5 Hindi	Academic Subjects
6 Kannada	1 Mathematics
7 Malayalam	2 Physics
8 Marathi	3 Chemistry
9 Nepali	4 Biology
10 Oriya	5 History
11 Punjabi	6 Geography
12 Sanskrit	7 Political science
13 Telugu	8 Economics
14 Urdu	9 Business studies
Academic Subjects	10 Accountancy
1 Mathematics	11 Home science
2 Science & Technology	12 Psychology
3 Social Sciences	13 Sociology
4 Economics	14 Painting
5 Business studies	
6 Home Science	Vocational Subjects
7 Psychology	1 Computer Science
8 Indian Culture & Heritage	2 Secretarial Practice
Vocational Subjects	3 Word Processing (English)
1 Word Processing (English)	4 Typewriting (Hindi or English)
2 Typewriting (Hindi, English or Urdu)	5 Stenography (Hindi, English or Urdu)

Note: To get a certificate at either level, one has to complete five subjects successfully, of which at least one has to be a language subject. The remaining four subjects to be taken are left to one's choice, except that no one can take more than two language subjects.

4.2.4 Vocational courses¹⁶¹ offered by NIOS

Though this study pertains to secondary and senior secondary Courses of NIOS, it is in place here to outline what NIOS has achieved in promoting vocational courses through open distance modality. NIOS (as NOS) launched its first vocational courses in 1997-98 and has made significant progress since then. The following table outlines the growth of the operation and also points to the popularity of the offerings.

¹⁶¹ Annual Report 2003-04, (2004), NIOS, New Delhi, pp. 34-36.

Table 4.2 **Enrolment in NIOS vocational courses¹⁶²**

	Year	Enrolment	Percent increase
As NOS	1997-1998	5,822	(+) 51
	1998-1999	7,164	(+) 23
	1999-2000	10,611	(+) 48
	2000-2001	12,026	(+) 13
	2001-2002	17,770	(+) 48
	2002-2003	22,321	(+) 26
AS NIOS	2003-2004	21,211	(-) 05
	2004-2005	20,985	(-) 11
	2005-2006	22,879	(+) 8.9

Over the years, enrolment has increased progressively except during 2003-2005, when the institutional operations were being remodeled to take on new responsibilities under the new mandate of NIOS. In addition to the yearly enrolments, the regional distribution of enrolees too is impressive, as all the regions, except Guwahati, show viable sizes of enrolment (see Table 4.3 below).

Table 4.3 **Enrolment (2005-06) by region in vocational courses¹⁶³**

S. N.	Regional Centres (RCs)	Enrolment	# of AVIs	# of SAIEDs*
1	Allahabad	431	129	--
2	Bhopal	2,148	89	02
3	Chandigarh	2,467	116	--
4	Delhi Zone-I	2,848	200	07
5	Delhi Zone-II	7,039	3	--
6	Guwahati	89	9	--
7	Hyderabad	1,265	47	05
8	Jaipur	637	36	--
9	Kochi	4,103	143	06
10	Kolkata	938	51	09
11	Patna	360	40	04
12	Pune	554	45	04
Total		22,879	908	37

* Special Accredited Institution for Education of Disadvantaged

Vocational courses are delivered at Accredited Vocational Institutions (AVIs) throughout the country. NIOS invites applications from institutions engaged in vocational activities and desirous of collaborating with NIOS to ascertain their suitability for NIOS operations. Rigorous screening of applications on the bases of pre-set course-specific norms together with that of the reports of inspection teams deputed to physically inspect the applicant institutions helps NIOS in identifying the institutions that it may collaborate with for purposes of delivering its vocational courses. The selected ones are termed AVIs, as they are accredited to function as study centres for NIOS on mutually agreed terms and conditions.

¹⁶² Annual Report 2005-06, (2006), NIOS, New Delhi, p. 35.

¹⁶³ Annual Report 2005-06, (2006), NIOS, New Delhi, pp. 35 and 38.

The Coordinators of study centres (usually the Heads or senior staff of the institutions concerned) are then oriented (using workshop methodologies) for the tasks they have to take on to deliver NIOS vocational courses. In the main, these tasks are no different from those of the Coordinators of AIs meant for secondary and senior secondary courses. The main difference between these two types of courses is that of heavy hands-on components in the vocational courses. Such components are handled by AVIs, as they have both the required expertise and equipment. The number of AVIs in 2005-06 was 908 and that of SAIEDs 37.

Distribution of the 2005-06 enrolees across the various types of courses (see Table 4.4) shows which courses are popular and also those which have yet to appeal learner populations. Currently, NIOS has more than 50 vocational courses of different types on offer, some of which (those in *italics*) are IT enabled and some (see the second column in table below) can be taken subjects by students as secondary and senior secondary courses.

Table 4.4**Enrolment by course in vocational courses (2005-06)¹⁶⁴**

S. N.	General Vocational Courses	Enrol- ment	S. N.	Vocational courses that can be clubbed with academic subjects	Enrol- ment
Six Month Courses			Stand Alone courses (Secondary Level)		
1	House-wiring & Electric Appliance Repairing	269	29	Word Processing (English)	--
2	Motor and Transformer Rewinding	86	30	Carpentry	29
3	Radio and Tape Recorder Repairing	20	31	Solar Energy Technician	03
4	TV Repairing	68	32	Bio-gas Energy Technician	--
5	Cutting and Tailoring	1347	33	Laundry Services	09
6	Dress Making	127	34	Jute Production	--
7	<i>Certificate in Basic Computing</i>	163	35	Bakery and Confectionery	186
8	Plumbing	88	36	Welding Technology	270
9	Beauty Culture	1454	Stand Alone courses (Senior Secondary Level)		
10	<i>Certificate in DTP</i>	456	37	Typewriting (Hindi)	27
11	<i>Certificate in Yoga</i>	759	38	Typewriting (English)	84
12	Certificate in Security services	1348	39	Typewriting (Urdu)	--
13	<i>Certificate in Computer Hardware Maintenance</i>	140	40	Stenography (Hindi)	67
One-year Courses			41	Secretarial Practice	36
14	Electric Technician	1863	42	<i>Word Processing (English)</i>	291
15	Radio and TV Technician	474	43	Plant Protection	10
16	Cutting, Tailoring and Dress Making	1937	44	House Keeping	79
17	Refrigeration and Air Conditioning	915	45	Catering Management	378
18	<i>Certificate in Computer Applications</i>	2963	46	Food Processing	27
19	Certificate in Two-wheeler Mechanics	93	47	Hotel Front Office Management	27
Package Courses			48	Poultry Farming	--
20	Secretarial Practice	519	49	Preservation of Food and Vegetables	03
21	Health for Rural Women (Gram Sakhi)	22	50	Computer Science	--
22	Diploma in Radiography (X-ray Technician)	90	Life Enrichment Courses		
23	Certificate in Library Science	409	51	Women's Empowerment (Pariporna Mahila)	--
24	Early Childhood Care and Education	2989	52	Community Health (Jan Swasthya)	2540
25	Diploma in Modern Secretarial Practice	144	53	Indian Culture and Heritage	--
26	Toy Making and Joyful Learning	06			
27	Diploma in Basic Rural Technology	29			
28	Certificate in Footwear Design and Production	10			
Total: Courses (53) and Enrolment (22,879)					

¹⁶⁴ Ibid. pp. 36-37.

4.2.5 Expansion of vocational courses

NIOS has ambitious plans regarding the expansion of vocational courses. “..The future thrust of the NIOS Vocational Courses is on training of educated unemployed youth for meaningful, skill oriented employment.....(including) rural development and (empowerment of girls and women).”¹⁶⁵ To achieve this objective, NIOS has entered and is in the process of entering more and more partnerships of various types. For instance, they are collaborating with:

- the Commonwealth of Learning to explore “challenges and future strategies” for vocational education and training through Open Schooling and for training the functionaries of the system of Open Schooling.
- NCERT, Technical Education Department (Govt. of Delhi), Board of Technical Education (Delhi Administration), IGNOU and industry to prepare a national curriculum framework for vocational education through open and distance learning methodologies.
- the Indian Medical Association to run para-medical courses the ODL way.
- the Rehabilitation Council of India to introduce need-based certificate courses for developing human resources for the physically challenged.
- AYUSH¹⁶⁶, Ministry of Health & Family Welfare (Govt. of India), to introduce courses in Homoeopathic Pharmacy and Ayurveda (traditional Indian medicine).
- Confederation of Indian Industries (CII) to build NIOS-industry partnerships leading to courses relevant to the growing industrial operations in the country. For example, Microsoft and CISCO are planning joint training ventures with NIOS.
- IGNOU to provide NIOS vocational graduates linkages with higher education/learning. As a positive outcome of this effort, IGNOU is in the process of establishing a School of Vocational Education, which is expected to provide not only the required higher levels of training for the NIOS vocational graduates, but also the much needed socio-academic credibility to vocational education.

4.2.6 Livelihood, productivity and development

NIOS has not conducted any impact studies to trace the destinations of its students and thus assess the levels of success/failure of its vocational courses. There are, however, various success stories on institutional records which provide tangible evidence favouring NIOS vocational courses for their utility in providing livelihood, promoting productivity and effecting development generally. Presented here are a few stories¹⁶⁷:

- Swapana Banik, a woman (18 years old) from Debaipurk Road, District Hoogly, fought poverty to get her Secondary Certificate in 2005, as her father had died long ago and her ailing mother earned just INR 500 per month as a casual labourer in an umbrella factory. Swapana was badly in need of a job to support her sick mother and younger brother, and there were no jobs available. A helpful neighbour directed her to Don Bosco Self-Employment Research Institute at Mirpara, where she joined the

¹⁶⁵ Annual Report 2005-06, (2006), NIOS, New Delhi, p. 40.

¹⁶⁶ AYUSH stands for the Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy in the Ministry of Health & Family Welfare, Government of India.

¹⁶⁷ Records with the Department of Vocational Education, (2007), NIOS, New Delhi.

Tailoring and Cutting Course (one of the NIOS recognised vocational courses). Swapana completed the course successfully and was employed by Frontier Garments Pvt. Ltd., Salkia, Howrah, on a monthly salary of INR 2300.

- A labourer's son, Mohosin Ali had obtained his Secondary Certificate in 1999. He wanted to have something of his own to live on, but he had neither the money to invest, nor any skills to take him forward. One of his friends directed him to the NIOS vocational course on Refrigeration & Air Conditioning. This led to him fabricating a cooling and freezing system that could produce ice-cream at a relatively lower cost. He sought and got a loan of INR 5000 from the Ministry of Human Resource Development, Govt. of India, to start a micro-enterprise, in this case an ice cream plant at Bandel Chalk Bazar, Hoogly. As he gained confidence in this enterprise, he took another loan (INR 400,000) from the Allahabad Bank to expand his business. Today Mohosin Ali owns 17 vendor wagons and his ice cream earns him between INR 15,000 to 20,000 per month. He is now supporting his younger brother in setting up a new enterprise.
- Darshan Singh Ahuja completed the Course on Refrigeration & Air Conditioning in 1997 at AVI-990011, Sri Guru Tegh Bahadur Industrial Training Centre, GT Karnal Road, Delhi-33. To earn a living, he started working on odd contractual jobs in private and public organisations. Those were the days when remote control of air conditioners was not common in India. He built low cost remote control kits and made good money in the business of modifying conventional air conditioners. Recently, he succeeded in using microprocessors to remotely sense faults in machines and, in many cases, also rectify them remotely. He is a different man today.

Such success stories in view, the enthusiasm of the Chairman and staff of NIOS regarding their vocational courses is not unfounded. If not all the thousands who register with NIOS annually, certainly a number of them must be making a good living as individuals and contributing to national productivity and development in one way or the other.

4.2.7 NIOS learner profile

With the objective of developing an inclusive and dynamic learning society, NIOS makes special efforts to reach out to marginalised groups such as school dropouts, girls and women, scheduled castes and tribes, ex-servicemen and differently able learners, and attracts large numbers of students from all over the country. In studying the learner profile of NIOS, it is therefore necessary to focus on the aspects that reflect and provide space for comments on the level of its achievement in fulfilling its socio-educational objectives (see Subsections 4.3.6 and 4.5.1). The tables presented in this subsection outline the NIOS learner profile (major characteristics) as seen over the past few years.

Table 4.5 Enrolment by gender¹⁶⁸—2001 to 2006

S. N.	Academic Year	Total enrolment	Male	%	Female	%
1	2001-02	214,582	152,286	70.97	62,296	29.03
2	2002-03	278,234	164,550	59.14	113,684	40.86
3	2003-04	321,010	220,103	68.57	100,907	31.43
4	2004-05	238,069	162,351	68.19	75,718	31.81
5	2005-06	267,026	182,440	68.32	84,586	31.68
6	2006-07	290,983	199,788	68.66	91,195	31.34

All along the number of male students has been higher than that of female students. Rather than attributing this disparity to the functioning or the offerings of NIOS, it has a better and convincing explanation in the general national/Indian scenario, wherein the level of female participation in education is much lower than that of their male counterparts. Interestingly, however, the male-female ratio (68:32) at NIOS has remained stable since 2003 for four consecutive years. From the Indian viewpoint, it is a positive development that women's enrolment is showing consistency and that NIOS is making visible contributions in resolving the issue of access and equity at the secondary level of education, though the participation of girls and women has yet to reach a level that corresponds favourably with the national male-female literacy ratio¹⁶⁹—75 per cent: 58 per cent.

Table 4.6 Enrolment by student category—2004 to 2006¹⁷⁰

S.N.	Categories	Year 2004-05		Year 2005-06		Year 2006-07	
		Enrolment	%	Enrolment	%	Enrolment	%
1	General	183,668	77.15	214,667	80.39	231,334	79.50
2	Scheduled Castes	35,098	14.74	30,679	11.49	36,599	12.58
3	Scheduled Tribes	17,140	07.20	19,933	07.46	21,029	07.23
4	Ex-Servicemen	324	00.14	304	00.11	434	00.15
5	Differently able	1,839	00.77	1,443	00.54	1,587	00.55
	Total	238,069	100.00	267,026	99.99	290,983	100.01

Nearly 80 per cent of the students at NIOS belong to the general category comprising the rural and the urban youth. About 20 per cent of the students enrolled belong to scheduled castes and tribes, which is close to the percentage of seats officially reserved for them¹⁷¹. It goes to the credit of NIOS that it attracts a reasonable percentage of students from these two categories, as the percentage participation of these two categories of students in other educational institutions in the country remains a sore issue in the context of equity in the national provision for education. The participation level of the ex-servicemen and differently able students together at less than 1 per cent is low indeed, as the reserved quota for the latter alone is 3 per cent. The silver lining in this

¹⁶⁸ NIOS – Academic enrolment: <http://nos.org/enrolacad.htm> (accessed on July 30, 2007).

¹⁶⁹ The over all national literacy rate is 64.8 per cent (Censes 2001).

¹⁷⁰ NIOS – Academic enrolment: <http://nos.org/enrolacad.htm> (accessed on July 30, 2007).

¹⁷¹ The percentage of seats that remain reserved in educational institutions, as elsewhere, for scheduled castes and tribes is 15 and 7½ respectively.

case, however, is that there are facilities for them and they are participating—the required space having been created, it may take some time for the rate of participation to improve.

Table 4.7 Enrolment by age—2004 to 2006¹⁷²

Sr. No.	Age range in years	Enrolment 2004-05		Enrolment 2005-06		Enrolment 2006-07	
		Number enrolled	%	Number enrolled	%	Number enrolled	%
1	10-14	2,967	01.25	8,662	03.24	10,873	03.74
2	15- 20	190,555	80.03	204,791	76.67	215,233	73.95
3	21- 25	30,409	12.77	36,709	13.74	43,022	14.78
4	26- 30	7,439	03.13	8,814	03.30	11,642	04.00
5	31- 35	3,288	01.38	3,961	01.48	5,122	01.76
6	36- 40	1,911	00.80	2,264	00.85	2,864	00.98
7	41- 45	988	00.42	1,191	00.45	1,394	00.48
8	46- 50	388	00.16	502	00.19	648	00.22
9	51- 55	91	00.038	111	00.04	153	00.05
10	56- 60	13	00.006	11	00.004	22	00.008
11	61- 65	5	00.008	5	00.004	4	00.003
12	66- 70	6		1		2	
13	71- 75	5		2		0	
14	76- 80	4		2		4	
	Total	238,069	99.99	267,026	99.97	290,983	99.97

Students in the age group of 15-20 years comprise 74-80 per cent of the enrolment. Considering that the target clientele of NIOS does not comprise the usual out-of-elementary-school student who looks for formal schooling, it goes to the credit of NIOS that it has succeeded in attracting precisely the group that it targets. The age group 15-25 years comprises 89-93 per cent of the enrolment and the age group 15-35 years comprises 95-97 per cent of the enrolment. Obviously, most of the students at NIOS are below 35 years of age—this should cover young adults who may have missed their chances at the “right time”, neo-literates, housewives, school drop-outs and those who need to earn while they learn. The participation of the adults beyond the age of 35 is considerably low at less than 1 per cent in each of the higher 5-year intervals. It is interesting and also instructive (as something different needs to be offered to them, and what could that be) that there are students in the age group of 76-80 years also.

It is worth noting that today ODL operations in India are not viewed the way they were when correspondence education was introduced in the country at the school level in mid-1960s. Correspondence education was considered to be a second rate cousin of the *real* (read face-to-face) education. It was supposed to be for those not worthy of being at a school. Though the level of socio-educational credibility of ODL in India has yet to reach the heights it has reached in developed countries, a new mindset¹⁷³ is visibly emerging among the Indian youth (rural as well

¹⁷² NIOS – Academic enrolment: <http://nos.org/enrolacad.htm> (accessed on July 30, 2007).

¹⁷³ The recent boom in call-centre jobs and similar developments in the corporate sector together with the unprecedented rise of retail trade are prompting ever increasing numbers of young people to opt for work at relatively younger ages. Coupled with this phenomenon is the growing appreciation of the importance of

as urban), as “earning while learning” has ceased to be a taboo. With that, ODL operations are gaining social recognition which they did not enjoy earlier and their influence is gradually increasing among the conventional mainstream students.

The present situation, however, is that many of the students who register with ODL institutions at the secondary level, are first generation learners who receive little support from their families and surroundings. Generally, they have poor study skills and are not fully aware of their strengths and weaknesses vis-à-vis the academic rigour required of them during their tenure as students. This situation has adverse implications for throughput in this system.

4.3 Description of the NIOS system

4.3.1 Management and organisational structure

The Union Minister for Human Resource Development is the President of the *National Open School Society (NOSS)* which is assisted by its *General Body* by providing it with professional advice and policy directions in order for it to fulfill its mission and objectives, and remain publicly accountable. At the operational level, it is the Executive Board of NOSS that prepares the policies, plans the programmes of action, ensures successful implementation of the policies and programmes, and also reviews the institutional activities and outcomes thereof. The Chairman of NIOS is the Chairman of the Executive Board that comprises NIOS Departmental Heads, nominees of the Union Ministry of Human Resource Development and specialists in distance education, development and education for women, industry, media, vocational education and technical education. For its smooth functioning, the Executive Board is assisted by various bodies/authorities, such as the Academic Council, the Finance Committee, the Examination Committee and the Establishment Committee.

- **The Academic Council**, chaired by the Chairman of NIOS, contributes to and supervises the implementation of academic policies, provides advice in relation to methods of materials production, course delivery and learner assessment and is also responsible for the maintenance of academic standards and the quality of institutional products, processes and outcomes. The Council operates through various committees, which it is authorised to constitute as and when required.
- **The Finance Committee** is responsible for scrutinising all financial matters including budget estimates and accounts and also for recommending various proposals for new financial outlays. This Committee too is chaired by the Chairman of NIOS.
- **The Examination Committee** provides advice in the preparation of examination related bye-laws, oversees the conduct of examinations to ensure their conformity with the relevant rules and regulations and approves the results of all the public examinations (conducted by NIOS) before they are made public.
- **The Establishment Committee** considers matters pertaining to terms and conditions of the services of employees including those of staff development, code of conduct and promotions.

education in the process of human capital formation. The happy consequence is that ODL is now being seen as not only purposeful but also necessary and therefore sought after.

At the operational level, NIOS operates a three-tier system that includes:

1. *The Headquarters* at New Delhi comprises five Departments (Academic, Administration, Vocational Education, Student Support Services and Evaluation) and two Divisions (Material Production and Distribution Division and Computer Division).
2. *The Regional Centres (RCs)* are located in eleven cities in India (Allahabad, Bhopal, Chandigarh, Delhi, Guwahati, Hyderabad, Jaipur, Kochi, Kolkata, Patna, and Pune) and some more outside the country in Nepal, UAE and Kuwait. Except the Delhi RC, each of the RCs in India caters to more than one State/Union Territory in its close vicinity, whereby NIOS reaches every nook and corner of the country. Delhi RC caters to the National Capital Region and links up with RCs in Nepal, UAE and Kuwait. All RCs work as links between the Headquarters and the third tier and also supervise the functioning of the latter.
3. *The Accredited Institutions (AIs)*¹⁷⁴ function as study centres under the administrative control of Regional Centres. They constitute the real interface between the learners and NIOS. They are of different types:
 - Accredited Institutions for academic courses are located mostly in secondary and senior secondary schools and in various societies/bodies engaged in developmental work. They provide academic and other learner support services for the NIOS secondary and senior secondary students.
 - Accredited Vocational Institutions (AVIs) are located at Vocational Training Centres such as Agriculture Centres, Community Polytechnics and various NGOs. They serve as study and training centres for the NIOS Vocational Education Courses.
 - Special Accredited Institutions for the Education of the Disadvantaged (SAIED) provide support to learners with special needs, who are either differently able or are socially and/or geographically disadvantaged.
 - Accredited Agencies (AAs) cater to the learners admitted to the Open Basic Education Courses, as their levels of readiness do not qualify them for secondary or senior secondary courses. These agencies are mostly NGOs and Zila Saksharata Samities (ZSS) (i.e. District Literacy Committees).

Currently in operation, there are 250 AAs and 2,750 centres comprising the first three categories. The responsibilities of these centres are:

- register students for NIOS courses/subjects in accordance with the NIOS regulations,
- supply study materials (received from NIOS) to the registered students,
- arrange learner support services,
- supervise assessment tests and arrange handling of assignments,

¹⁷⁴ NIOS Accredited Institutions (AIs) are recognised formal schools or reputed bodies engaged in social work and community development. They function as NIOS Study Centres on a contractual basis, and are paid at a fixed rate per student on the basis of the number of students they register.

- distribute marks-sheets and certificates to students and
- register students for and conduct public examinations (if selected as examination centres also).

4.3.2 Preparation of study materials

Since NIOS is mandated to support not only the establishment of open schools in the States and Union Territories, but also to contribute to their products and processes. So, it involves them in the process of materials development. The details of the said process are as follows:

1. The needs of the specific regions and the states are identified by the Regional Centres of NIOS in collaboration with the Open Schooling State Coordination Committees (OSSCC) and various other development agencies.
2. The needs thus identified are discussed and finalised by the Regional Centres at their respective Regional Centre Advisory Committee (RCAC) meetings. The agreed upon list of perceived needs is passed on to Headquarters.
3. These needs are considered by the Departmental/Divisional Advisory Boards at the Headquarters and used by the various Departments and/or Divisions to prepare the outlines of their academic and vocational courses/subjects. In so doing, the National Curriculum Framework 2005¹⁷⁵ and its guiding principles are followed meticulously.
4. The finalised outlines are submitted to the Academic Council, which arranges to obtain additional inputs from the Regional Centre Advisory Committees and the Research Advisory Committee (RAC) and also ensures compliance with the relevant guidelines in the National Curriculum Framework 2005, in order to take informed decisions regarding additions and alterations in the courses/subjects under consideration.
5. The courses/subject outlines approved by the Academic Council are taken up by the relevant departments to work on. At this stage, the related necessary financial approvals are also sought and taken. Grants for the related research activity also are approved and released at this stage.
6. The courses/subjects approved by the AC and the RAC are reported to the Executive Board of NIOS.
7. The actual work on the preparation of self-learning study materials begins at Stage 5 above, when an approved course/subject outline is taken up by the department concerned, which assigns the task to an Academic Officer who coordinates the process of materials preparation.
 - i. A team of subject experts is set up to prepare the materials. The team may comprise experts from NIOS, institutions other than NIOS or may be a mix of the two.
 - ii. The team members are given orientation (usually through workshops) to help them prepare materials in accordance with the requirements of NIOS students, with a view to the learning outcomes as detailed in the approved course/subject outlines, the profile of NIOS students and the fundamentals of instructional design suitable for self-learning.

¹⁷⁵ National Curriculum Framework 2005 is a 124 page document prepared by NCERT emphasising learning without burden and child-centred education. It provides the latest guidelines regarding curricula, teaching methodology, etc. for lower level education in India. <http://www.indiatogether.org/2005/dec/edu-ncf2005.htm>

- iii. Review meetings (usually three, could be more if needed) are held to work on the drafts of the materials at different stages. The feedback received is used to improve and finalise the drafts.
- iv. The final version thus prepared is edited for content, language and social acceptability (for example, any sexist expressions or elements that may be offensive for some religious groups are removed at this stage). Depending on the availability of the required expertise (a content expert may not be a language expert too), the task may be entrusted to one or more editors.
- v. Usually a subject comprises a number of modules prepared by different individuals or teams with different orientations, which may get reflected in what they write/prepare. To overcome this possible weakness in the materials, all the modules in a subject are subjected to final editing by a senior subject expert.
- vi. Once the modifications suggested at stage (v) are incorporated in the materials, the Subject Coordinator arranges meetings with graphic artists and the media personnel available in house or hired from outside depending on the pressure of work at a given point in time. NIOS has approved lists of outside producers and graphic artists whose services are requisitioned as and when needed.
- vii. Having incorporated the relevant graphics, the materials are sent to the copy editor to prepare the camera-ready copy, which in most cases is digitised for storage, printing and future use.
- viii. The camera-ready copy, which is in English invariably, is given for translation into Hindi, Urdu or other languages as it is the translated versions of the materials that are used by many students, especially those who do not have the required competence in English.
- ix. The purpose of meetings with the media personnel (audio as well as video, mentioned in item (vi) above) is to apprise them of the portions, themes/sub-themes and concepts that the department concerned and/or the materials writers would like to be supported with media materials. To facilitate the work of producers, the department concerned prepares the relevant academic briefs, which are used by the producers to prepare draft scripts and also to decide the format of the presentations—lectures, mock tutorial sessions or docu-dramas. This is the time when the related budget is discussed and the necessary approvals obtained.
- x. Producers conduct whatever research they need to and finalise the draft scripts, which are discussed in meetings with the departments concerned. This exercise helps the producers come up with the production scripts. If needed, the production scripts are discussed with and improved with the help of the department concerned before the actual shooting/recording commences and also while it is in progress.
- xi. The rough cuts are passed on to the department concerned for comments. In addition to the academic and instructional quality of the materials, the departments concerned look into the technical quality of the production as well. Generally, this exercise requires more than one meeting between the media personnel and the departments concerned.
- xii. The exercise at stage (xi) is used to finalise the media programmes, which are then used at study centers in operation at AIs and AVIs and also broadcast over educational and/or national channels.

The above details, besides outlining the process of materials preparation (print, audio and video) at NIOS, also trace the process-specific quality assurance mechanisms that are in place to ensure the quality of study materials prepared by NIOS. Having reviewed various subject modules (for

secondary as well as higher secondary courses) in use today, we have no hesitation in commending their excellent content and effective instructional design, but at places the quality of language (English syntax) is questionable—it appears that language editing is the issue here, and it needs to be addressed.

4.3.3 Course delivery

To appreciate the course delivery mechanism of NIOS, we need to see how they differentiate their system from the traditional educational transaction.

Table 4.8 Traditional and Open Schooling: transactional differences¹⁷⁶

S. N.	Characteristics	Traditional formal schooling	Open Schooling
1	Entry requirements	Fixed	Open
2	Location and duration of transaction	Fixed	Open: any place and any time (<i>within the permitted span of five years</i>)
3	Curriculum	Fixed	Open and life oriented
4	Teaching-learning transaction	Teacher led and face-to-face instruction	Individualised self-learning materials supported by multi-channel inputs including occasional face-to-face sessions
5	Teaching-learning materials	Textbooks and occasional teaching aids	Specially prepared self-learning study materials supported by media materials
6	Pace of studies	Strictly regulated	Self-paced and self-directed
7	Learner assessment	External sit-in examinations	External sit-in examinations

The multi-channel delivery mechanism includes:

- self-learning printed materials (to be studied by students on their own at their own places and at times convenient to them),
- supplementary audio and video materials (to be listened to and viewed when broadcast or at study centres),
- personal contact programmes (to get over doubts and difficulties requiring support from tutors or counselors and to interact with tutors and peers), and
- occasional on-line communication.

Course materials in self-learning format constitute the main medium of the didactic transaction. The first step in course delivery, therefore, is the distribution of printed course materials, usually done at the time of registration at NIOS Accredited Institutions.

Subsequently, depending on the subject concerned, students are supported by various combinations of face-to-face tutorials (30 sessions per subject and 35 sessions for subjects with practical work), laboratory work, audio-video cassettes, radio broadcasts and telecasts (through *Gyanvani*, *Gyan-darshan* and *Door-darshan-1*)¹⁷⁷, on-line supplements and teleconferencing.

¹⁷⁶ *Handbook for Academic Facilitators of NIOS*, (2007), NIOS, New Delhi, pp. 5-8.

¹⁷⁷ Hindi expressions respectively for *Educational Radio*, *Educational Television* and the *National Television*.

Interaction is further enhanced through assignments, which are assessed by the tutors at the study centres.

Once admitted, a student can remain on the rolls for five years, during which period he/she should complete five subjects successfully to earn the certificate, secondary or senior secondary as the case may be. As there are no fixed subject combinations prescribed by NIOS, students are allowed to choose any five subjects of their choice, one of which has to be a language subject, but no one is allowed to take more than two language subjects. Though the students are free to choose the subjects they like, there are arrangements in place to advise them regarding appropriate subject combinations in case they intend to go for higher studies in their fields of choice.

4.3.4 Student support services¹⁷⁸

NIOS recognises that its students need support in cognitive, psycho-motor, affective and systemic domains.

Support in the cognitive domain is provided through self-learning study materials, media materials and contact programmes (30-35 sessions per subject) arranged at AIs and AVIs. Support in the psycho-motor domain too is provided at AIs through facilities for lab work and practicals. The major problem faced by the NIOS students in the affective domain is their lack of self-esteem, commitment and confidence. Contact with peers and tutors, listening to and watching audio and video programmes (specifically designed for the purpose), working through “*Open Learning*” (a bimonthly supportive magazine), study guides and assignments go a long way in mitigating such problems. As for the systemic domain, learner friendly and transparent administrative processes and information management systems provide all the support needed by students—registration services, responses to enquires, credit transfer from various boards, participation at study centres and in examinations, and collection of result-cards and certificates.

Pre-registration support is provided nationally through the Headquarters, regionally through the Regional Centres and locally through AIs and AVIs using the press and broadcasts. Such support pertains to basic information regarding courses/subjects and fees. A major facility provided at AIs/AVIs is counseling regarding the choice/selection of subjects and the future scope in relation to each one of them. On-course support comprises contact programmes, work on assignments and practicals, most of which focus on academic issues and preparation for examinations primarily, though ample attention is given to the attitudinal issues too. Post-course support in the form of counseling pertaining to future possibilities in the academic field and the employment market is also provided at all the AIs/AVIs.

The process described above and the arrangements in place to materialise it are practical and also sound from a quality assurance viewpoint. But there are issues here:

- While NIOS uses strict selection procedures to identify and accredit institutions (usually conventional schools, private as well as public, NGOs, vocational institutions and other bodies engaged in community work) to house their registration activity, study centre and examination facilities, such procedures alone, however strict they may be, cannot ensure quality services from them. Their work has to be monitored equally strictly.

¹⁷⁸ *Handbook for Academic Facilitators of NIOS*, (2007), NIOS, New Delhi, pp. 9-12.

- NIOS pays its Accredited Institutions (AIs) at a flat rate of INR 250 per student registered at/through them. Arrangements with AVIs and SAIEDs are more elaborate. It is the AI concerned that selects and pays the tutors/counselors whom it appoints for the registered NIOS students. As NIOS has no direct involvement in these selections and appointments, the quality of the tutors/counselors could be questionable. The quality and work of tutors/counselors, who constitute the backbone of the system of personal contact programmes, needs to be assessed, monitored and weak links corrected to ensure quality services from them.
- Study centres (i.e. AIs and AVIs) are the locations where assignments are handled—students are supposed to submit assignments at pre-determined intervals at the respective study centres; the tutors are supposed to evaluate them, grade them and pass on instructive feedback to the students concerned, and also prepare the related documentation and send copies thereof to the Regional Centre concerned. As this process is not monitored, one cannot be sure of the nature of what actually is practised.

However, the silver lining is that NIOS is seized of these issues and they are being addressed in various ways (see Monitoring and Evaluation in Subsection 4.3.6).

4.3.5 Learner assessment and certification¹⁷⁹

Among the various Boards¹⁸⁰ of Secondary and Senior Secondary Education in India, NIOS is the only institution authorised to function as a Board of Secondary, Senior Secondary and Vocational Education and also as a secondary school. In other words, NIOS provides not only education and training, but also the related certification.

In order to provide for credit accumulation during the five years while a student is on the rolls, he/she is allowed nine chances to appear at examinations. NIOS conducts two public examinations each year in April-May and October-November, and allows students to appear in one or more subjects at any of these examinations. All such examinations belong to the external category, as all internal assessment at NIOS is formative in character and does not contribute to final scores for certification.

There is also a provision for on-demand examinations, under which students are permitted to appear at examinations as and when they feel that they are ready to sit for one or more as the case may be. (This facility, however, is available only at a few places at present for experimental purposes.) To claim a certificate, a student should fulfill the following criteria:

- **Secondary Certificate:** A student should accumulate passes in five subjects including at least one language subject, but not more than two language subjects. To get a pass in a subject, one should score at least 33 per cent at the public examination. In subjects with practicals, the marks scored in theory and practicals are aggregated to calculate the pass percentage.
- **Senior Secondary Certificate:** The same as for the Secondary Certificate, except that in subjects with practicals, to pass one should score at least 33 per cent marks in each of the components, the practicals and the theory, separately.

¹⁷⁹ NIOS at a Glance-2006, (2006), NIOS, New Delhi, p. 34.

¹⁸⁰ The major function of such Boards is to conduct public examinations leading to secondary and senior secondary certification.

4.3.6 Quality assurance

The status of quality assurance at NIOS is studied best partly in relation to Institute's Vision and Mission (see the concluding observations in Subsection 4.1.3) and partly in terms of monitoring and evaluation practices.

- **Vision¹⁸¹:** The NIOS, with international recognition and presence, provides access to sustainable and learner-centric quality school education, upgrading of skills and training through open and distance learning and ensures convergence of Open Schooling organisations to promote an inclusive learning society, human resource development, national integration and global understanding.
- **Mission¹⁸²:** NIOS:
 1. promotes a system of open learning for providing quality education which results in a dynamic inclusive learning society,
 2. provides a dynamic flexible system of Open Schooling for development of a knowledge society,
 3. acts as a national resource to set a proactive role model for learner-centric open and distance learning system at the school stage,
 4. develops professional support network using contemporary technologies,
 5. provides education and training for upgrading skills and lifelong learning for all,
 6. provides need based Vocational Education for making its students entrepreneurs and not just job seekers,
 7. establishes action oriented research for strengthening the Open and Distance Learning System at the school level,
 8. achieves excellence in matters such as quality of learning materials, student support services, system of assessment and professional development of staff,
 9. identifies and reaches out to prioritised client groups viz. school drop-outs and marginalised groups such as the rural youth, the urban poor, girls and women, scheduled castes, scheduled tribes, backward classes, minorities, differently able and ex-servicemen to universalise secondary education,
 10. promotes national integration and integrated development of people,
 11. strives for the promotion of Open Schooling at the regional, national and global levels through advocacy and consultancy programmes, by providing forums for exchange of ideas and information, and capacity building of open school functionaries by way of training and attachment programmes, and
 12. undertakes continuous self-assessment and self-improvement for systemic improvement.

Considering this mission statement, the status of quality assurance (QA) at NIOS has to be assessed in the context outlined by the above commitments and not by merely assessing the core academic transaction effected and maintained by the Institution. The following observations¹⁸³ should point to relevant and tangible conclusions.

¹⁸¹ Based on the statement presented in *NIOS at a Glance-2006*, (2006), NIOS, New Delhi, p. 10.

¹⁸² Ibid. p. 11.

¹⁸³ *NIOS at a Glance-2006*, (2006), NIOS, New Delhi, pp. 16-20.

1. NIOS provides educational opportunities to diverse clientele like no other school does in the country—open basic education for children up to 14 years of age, school drop-outs, neo-literates, street children, adolescents and illiterate adults; secondary and senior school education for one and all; vocational education for the rural youth and life enrichment courses for general masses. (See items 1, 2, 5, 6, 9 in the Mission Statement above.)
2. NIOS courses cater to the needs of special learner groups such as first generation learners; learners challenged in various ways---physically, mentally and visually; learners from disadvantaged groups such as girls, women, scheduled castes and tribes and the out-of-school youth. (See items 1, 2 and 9 in the Mission Statement above.)
3. NIOS collaborates with COL and UNESCO in the process of promoting Open Schooling in India and also in various developing countries. The Open Schooling Association of the Commonwealth (OSAC), a constituent of NIOS, offers formal qualifications in Open Schooling for capacity building in and outside India. The Secretariat of the Open Schooling Association of the Commonwealth (OSAC) too is housed at NIOS. It organises human resource development programmes for the functionaries of the Open Schooling system, promotes research and quality assurance activities for developmental purposes, provides forums for exchange of ideas, experiences and innovations among the member institutions/countries and publishes the *OSAC Journal of Open Schooling*, a half-yearly journal, to disseminate research findings and other works pertaining to the interests and concerns of the members—all aimed at the promotion and development of Open Schooling systems across the member countries. (See items 10 and 11 in the Mission Statement above.)
4. Considering the size of the country, the diverse educational needs of the various States and Union Territories and the limitations of the existing educational provision in the country, NIOS initiated and established the National Consortium for Open Schooling (NCOS). It has enabled a network of the leading organisations dealing in Open Schooling at the national and state levels. This has helped NIOS in persuading Indian states to establish their own open schools. Ten states have already established such schools and many more are working to follow suit. Ultimately, it is the State Open Schools (SOSs) that will prove more successful in expanding and enriching the Open Schooling system in their respective states. Using the relevant regional/state language as the medium of instruction, such schools are bound to address the issues of access, equity and relevance of education more effectively in the respective local environments. (See items 2, 3, 10 and 11 in the Mission Statement above).
5. While continuing its functions as a school, NIOS is also functioning as a resource institution at the national as well as the international level. Also, while continuing its contribution in the area of programming, it engages more and more in advocacy, consultancy, training of the diverse personnel, dissemination of information, good practices and research findings nationally as well as internationally. (See items 3, 4 and 12 in the Mission Statement above).

6. A scheme of Grants-in-aid for Research Projects in Open Schooling (GRPOS)¹⁸⁴ was approved by the Research Advisory Committee (RAC) and the Academic Council in early 2006. It has a provision for accepting and funding external research projects relevant to Open Schooling. The identified priority research themes pertain to academic issues, administrative/managerial operations, vocational education and a number of themes envisaged in NIOS Vision Document. (See items 7 and 8 in the Mission Statement above).

The above six observations outline genuine efforts and their tangible outcomes that evidence a reasonable level of achievement in fulfilling the institutional mandate, and that establishes quality credentials of NIOS convincingly.

- **Monitoring and evaluation:** NIOS defines¹⁸⁵ monitoring as a process of “keeping track of what is being implemented with a view to check whether or not the programme/project is progressing smoothly as per …(the agreed to) ..schedule..” and evaluation as the process of “arriving at judgments on the nature and extent of the work or worthwhileness of the programme/project.”

Apart from monitoring the financial and administrative management following the time honoured auditing procedures, NIOS has in place a monitoring system that addresses learner concerns specifically. Such concerns pertain to five distinct activities at study centres (AIs and AVIs):

- registration of students,
- delivery of study materials,
- organisation of contact programmes, laboratory work and assignment handling,
- organisation of sit-in examinations, and
- delivery of marks-sheets and certificates.

The following mechanisms are in place to monitor these activities:

- i. **Regional Centres (RCs)** not only oversee the conduct of registration and examinations, but are also responsible for liaison with State Open Schools and State Education Departments and iv) monitoring the conduct of NIOS activities at study centres within their jurisdiction. The process includes visits of the RC Staff to and conduct of training, extension and developmental activities at study centres. Regular periodic meetings of the Coordinators and RC Staff are held to address operational issues and find solutions wherever needed.
- ii. **Academic Facilitators** (usually retired professionals) have been appointed on ad hoc basis to oversee the functioning of study centres. Each one of them is attached to a few study centres (AIs and AVIs) in their vicinity and they have to visit them from time to time, observe their functioning— assignment handling, conduct of tutorials, management of examinations and practical work and report their observations and inspection reports to the relevant Regional Centre and Headquarters. They are also charged with the responsibility of informing and advising coordinators of study centres with a view to improving their functioning

¹⁸⁴ Annual Report 2005-06, (2006), NIOS, New Delhi, pp. 121-124.

¹⁸⁵ Framework and Networking System for Formulation of Educational Programmes, Monitoring of their Implementation and Evaluation in the Context of Open Schooling: Final Report (2007), National Institute of Open Schooling, New Delhi, pp. 63-70.

- and effectiveness. It is, however, too early to comment on the success or otherwise of this provision, as the operation has been put in place only recently.
- iii. **Special Observers** are deputed to examination centres to oversee the conduct of examinations. They must send their reports to Headquarters every day during the examinations.
 - iv. **Visiting Officers** from the Headquarters are deputed to study centres from time to time to look into their functioning.

As for evaluation, no formal procedure or process is in evidence at NIOS. For example, programme evaluation, a major activity usually taken up by most distance education institutions is not practised at NIOS. The Institute, however, engages in various activities that partly contribute to institutional evaluation in significant ways. For example:

- i. The Grants-in-Aid for Research Projects in Open Schooling scheme is not a first of its kind for NIOS. Some of the earlier (during the NOS era) research activities focused on systemic issues to identify the weaknesses and gaps in institutional policies and operations in order to help the managers and the line staff in taking corrective steps wherever needed. Some of the studies worth mentioning pertain to the profile of NOS students¹⁸⁶, the factors that affect the performance of NOS students at the May and November examinations¹⁸⁷, the correlation between the performance of the learners and their academic preparedness and socio-economic background¹⁸⁸, the correlation between the performance of learners and their academic preparedness and socio-economic background¹⁸⁹, the problems faced by NOS students¹⁹⁰ and the effect of specially designed personal contact programmes on the academic attainment of students¹⁹¹.

¹⁸⁶ Srivastava, R. (1995), *Socio-economic analysis of NOS learners: A Report*, National Open School, New Delhi.

¹⁸⁷ Sharma, O. P. (1997), *An Investigation into the Factors Affecting the Performance of NOS Students in May & November Examinations*, National Open School, New Delhi.

¹⁸⁸ Sharma, O. P. (1997), “Attendance in Personal Contact Programmes and Performance of Open Learners”, *Indian Journal Of Open Learning*, 6 (1 & 2), pp. 71-75.

¹⁸⁹ Sharma, O. P. (1999), “Impact of Socio-economic and Educational Background of Distance Learners on their Performance”, *Journal of Distance Education*, pp. 93-98.

¹⁹⁰ Sharma, O. P. (2000), *Problems of the Learners of NOS: Observations and Suggestions*, Planning Commission, Government of India, New Delhi.

¹⁹¹ Sharma, O. P. (2001), *A Study of the effectiveness of Specifically Designed PCPs on the Performance of Science Students in National Open School: A Report*, National Open School, New Delhi.

The outcome of these studies has contributed appreciably to the quality of various learner related products and services at NOS. For example, an increase in the number of contact sessions per course in general and on top of that another five sessions for science students; introduction of counseling, interactive tutorials and problem solving exercises in PCP activities; insight into learner concerns and problems in relation to May and November examinations and the consequent modification in examination timings and timeframes of other processes; conduct of training needs analysis and the introduction of staff development activities. Obviously, NOS has been and now NIOS is quality-conscious and incorporates reformative modifications wherever needed and wherever possible. All this ensures the quality of the products and processes that concern NIOS learners and their studies and/or training.

- ii. In 2005-06, NIOS conducted a nation-wide Training Needs Survey focused on coordinators of study centres, academic facilitators and tutors/counselors. Based on the survey, training modules have been prepared to reorient these three types of functionary. Actual orientation/training sessions are expected to commence any time now. The plan is to first cover all the functionaries in place now and then provide such orientation/training on regular bases to all the new comers. This provision together with that of Academic Facilitators must adequately address the issues outlined above.

To sum up, as for the academic/training products and processes, NIOS depends on product- and process-specific operations for quality assurance. There is no specific Quality Assurance Unit in charge of ensuring quality at NIOS, nor is there any arrangement for self-assessment by academics and others or that by departments or divisions to lead to internal assessment. There is no external assessment of any kind on board either. There are, however, well defined procedures and practices in place to ensure quality in the primary products and processes of the institute, i.e. self-learning materials, student support services and learner assessment. (Detailed information and the related observations are presented in Subsections 4.3.2, 4.3.4 and 4.3.5 above.)

4.4 Comparative effectiveness of NIOS

Section 3.5 (Chapter 3) builds a strong case for universalising secondary education in India, and the Government of India is committed¹⁹² to doing so. Universalisation of education at the primary level has nearly been achieved (see Table 3.3, Chapter 3), but as argued in Chapter 3, the existing arrangement for the secondary level is awfully inadequate for meeting the impending challenge. Further, as Chamarbagwala¹⁹³ indicates, the provision and the infrastructure that needs to be put in place have to be of a kind that allow those of the targeted clientele who are in the labour market to continue on their jobs while they improve their educational levels. This then is the context and also the compelling argument in India for alternative systems of education/training that may even remotely promise to be more cost-effective and cost-efficient than the traditional

¹⁹² See Footnote 5 on page 2.

¹⁹³ Chamarbagwala, R. (2004) "Returns to Education, Child Labour & Schooling in India", Department of Economics, Indiana University, Bloomington. <http://129.3.20.41/eps/dev/papers/0410/0410003.pdf> (accessed on July 30, 2007)

system. Since NIOS is a Central Government Institution, we choose to analyse its effectiveness in comparison with that of other secondary level institutions run by the Central Government.

4.4.1 Secondary education initiatives of the Government of India

As far as the lower levels of education are concerned, the Central Government may take pride in three of its major initiatives Kendriya Vidyalaya Sangathan (the Apex Executive Body of Central schools), Navodaya Vidyalaya Samiti (the Apex Executive Body of Jawahar Navodaya Schools) and National Institute of Open Schooling (NIOS).

- Kendriya Vidyalaya Sangathan¹⁹⁴ (KVS), with its headquarters at New Delhi, manages Kendriya Vidyalayas (KVs) (i.e. Central Schools) spread all over the country and abroad. The first of these schools were established in 1963-64 and the process of expansion continues. These schools were established primarily to cater to the children of the transferable Central Government employees and Services Personnel. At present, however, they admit the children of other government employees and some related categories on quota basis. They run classes from the primary level through to the higher secondary level, though not all of them run all the levels necessarily. As of August, 2007, there are 979 Kendriya Vidyalayas staffed by 38,735 employees catering to 983,537 students, i.e. on average nearly 1,005 students per school. These schools are fully funded by the Government of India through the Ministry of Human Resource Development. Generally, they enrol students at the lowest level available at the school concerned. Their collective enrolment is around 100,000 annually, i.e. on average around 102 new students per school. Their fee structure (per month in INR)¹⁹⁵ applicable throughout the country is outlined below.

Table 4.9 Fee structure of KVs (INR per month)

1	Admission fee	25.00
2	Re-admission fee	100.00
3	Tuition fee (Classes IX-X)	40.00
4	Tuition fee (Classes XI-XII)	50.00
5	Computer fee (Classes III onwards...)	20.00
6	Computer Science fee (for elective subjects at XI-XII level)	40.00
7	Vidyalaya Vikas Nidhi (i.e. <i>School Development Fund</i>) (Classes I-X)	160.00
8	Vidyalaya Vikas Nidhi (Classes XI-XII—Non-science subjects)	160.00
9	Vidyalaya Vikas Nidhi (Classes XI-XII—Sciences)	200.00

¹⁹⁴ “Kendriya Vidyalaya Sangathan” at <http://www.kvsangathan.nic.in> (accessed on July 30, 2007)

¹⁹⁵ “Kendriya Vidyalaya Sangathan: Fee Structure (per month)” at <http://kvsangathan.nic.in/feestructure1.aspx> (accessed on July 16, 2007)

- Navodaya Vidyalaya Samiti¹⁹⁶ (NVS), conceived under the National Policy on Education - 1986, runs a chain of schools, called Jawahar Navodaya Vidyalayas (JNVs), all over the country. The first two of them were established in 1985-86 on an experimental basis. It is envisaged that each district in the country (except the 30 in Tamil Nadu where the state that has not accepted this scheme) will have one such school. The present sanctioned number of these schools is 557 (covering 91 per cent of the districts), of which 539 are functional currently. All these schools are fully residential and co-educational catering to students from class VI to class XII. Registration is made at class VI through an open selection/entrance test conducted by the CBSE, and 32,000-35,000 new students are admitted annually, i.e. on average around 60-65 new students per school annually. The purpose of these schools is to identify and then develop talented children from rural areas mainly, who otherwise would not get the education they deserve because they cannot afford it. Those registered get free education, board and lodging, clothing and books. By the Samiti's own estimation, their expenses per student per year stand at INR 6,500.00 (Board and lodging: INR 5,000.00; Uniform: INR 600.00; Books: INR 100.00; Toiletries: INR 300.00; and other items like stationary: INR 500.00). This cost, however, does not include any of the institutional costs, such as the salaries of teachers, buildings and laboratories.

4.4.2 NIOS and the issues of access and equity

NIOS is the only initiative of the Central Government¹⁹⁷ that squarely addresses the issues of access and equity touched upon in Subsections 4.2.4 and 4.3.6. It is true that the normal reservations for SC/ST students are practised at all the school as usual, but all that stands in absolute contrast with the intake of NIOS comprising a mix of dropouts, overworked adults, housewives and out-of-school children. Though this situation must affect throughputs rates of NIOS adversely, it is highly commendable for NIOS to be in the forefront of the process that addresses these issues. This takes us to some of the salient features of NIOS in order to appreciate its strengths and recognise its weaknesses on our way to estimate its cost-effectiveness vis-à-vis the conventional systems of schooling.

¹⁹⁶ “Jawahar Navodaya Vidyalayas” at <http://www.navodaya.nic.in/jnvs.htm> and http://www.microsoft.com/india/education/pil/case_Nav. (accessed on July 16, 2007)

¹⁹⁷ There are 10 State Open Schools in India and their mandates are comparable to that of NIOS, but generally their operations remain limited to the respective States.

Table 4.10 Enrolment trend¹⁹⁸ since 1990-91

Academic Year	Enrolment ('000)	Variations (%)
1990-91	40	
1991-92	34	- 15.0
1992-93	56	+ 64.7
1993-94	64	+ 14.3
1994-95	65	+ 01.6
1995-96	77	+ 18.5
1996-97	91	+ 18.2
1997-98	112	+ 23.1
1998-99	129	+ 15.2
1999-00	147	+ 14.0
2000-01	186	+ 26.5
2001-02	214	+ 15.1
2002-03	278	+ 29.9
2003-04	321	+ 12.2
2004-05	238	- 25.9
2005-06	267	+12.2
2006-07	290	+08.6
Average annual increase over the past 16 years		+13.0 ⁺

More than 13 per cent sustained annual rise in enrolment in a single institution without any corresponding increase in substantive staff and infrastructure is unheard of in the conventional system of schooling in India. A system that displays such capacity, without making any significant additional inputs, should be cost-effective as well as cost-efficient. But is it really so? We must look into the characteristics of this enrolment.

¹⁹⁸ National Institute of Open Schooling—Enrolment trend: <http://nos.org/enroltrend.htm> (accessed on July 30, 2007)

Table 4.11 Enrolment by region and state¹⁹⁹ (an illustration)

Year - 2006-07				
Regional Centres	State	Secondary level	Senior Secondary level	Total
Hyderabad	Andhra Pradesh	678	2,822	3,500
	Karnataka	235	618	853
Pune	Maharashtra	9,397	3,635	13,032
	Goa	2,191	470	2,661
Kolkata	Orissa	2,442	845	3,287
	Sikkim	1,359	770	2,129
	West Bengal	8,992	5,479	14,471
	Andaman & Nicobar	1,063	763	1,826
Guwahati	Assam	1,394	1,373	2,767
	Manipur	5,494	3,970	9,464
	Meghalaya	1,360	31	1,391
	Nagaland	2,473	1,049	3,522
	Tripura	402	265	667
	Arunachal Pradesh	2,023	871	2,894
	Mizoram	2,261	1,090	3,351
	APO (Army Post Office)	3	30	33
Chandigarh	Haryana	27,861	24,479	52,340
	Himachal Pradesh	4,491	10,287	14,778
	Jammu & Kashmir	423	678	1,101
	Punjab	7,299	1,754	9,053
	Chandigarh	940	435	1,375
	Kochi	1,558	2,624	4,182
	Kerala	255	279	534
	Pondicherry	1	4	5
Delhi Zone-I	Delhi	37,551	35,266	72,817
Jaipur	Gujarat	610	436	1,046
	Rajasthan	5,173	2,515	7,688
Patna	Bihar	3,455	3,948	7,403
	Jharkhand	1,697	1,084	2,781
Allahabad	Uttar Pradesh	14,218	13,685	27,903
	Uttranchal	6,408	4,981	11,389
Bhopal	Madhya Pradesh	3,892	1,552	5,444
	Chhattisgarh	765	548	1,313
TOTAL	INDIA	158,364	128,636	287,000

¹⁹⁹ National Institute of Open Schooling—Enrolment in the last 5 years at
<http://www.nios.ac.in/last5yrs.htm>
 (accessed on July 30, 2007)

Table 4.11 (Continued)

FOREIGN STUDENTS				
Region	Country	Sec.	Sr. Sec.	Total
Delhi Zone-II	UAE (United Arab Emirates)	341	442	783
Delhi Zone-II	Nepal	228	418	646
TOTAL		569	860	1,429
DIFFERENTLY ABLE STUDENTS				
Region		Sec.	Sr. Sec.	Total
All India	SAIED #	1,858	696	2,554
Grand Total	NIOS	160,791	130,192	290,983

Special Accredited Institutions for the Education of Disadvantaged

Having divided its nation-wide activities into 12 regions, NIOS covers all the states and the Union Territories of the country. Each region covers more than one state and/or Union Territory and is administered by a Regional Office, usually stationed in a major city in the region. NIOS operations go beyond the national boundary; the foreign operations are looked after by the Headquarters at New Delhi. Another point to notice is the size of enrolment and the distribution of enrolees—each state and Union Territory has representation at NIOS. The picture that emerges is that of a truly national institution, which is open to every person without any restriction, except those necessitated by academic considerations. One of the major attractions of NIOS has to be its fee structure, which is not expensive.

Table 4.12 NIOS fee structure²⁰⁰

	Secondary level	Senior Secondary level
For 5 subjects		
Male students	INR 1000.00	INR 1150.00
Female students	INR 750.00	INR 900.00
Exempted Categories	INR 550.00	INR 625.00
For each additional subject		
Male students	INR 150.00	INR 180.00
Female students	INR 150.00	INR 180.00
Exempted Categories	INR 150.00	INR 180.00
Examination fee: INR 90.00 per subject without practicals. INR 130.00 per subject with practicals.		
Miscellaneous fee: INR 50.00 each for a duplicate copy of the Marks sheet, Migration certificate, Identity card or Certificate.		

²⁰⁰ NIOS at a Glance-2006, (2006), NIOS, New Delhi, p-25.

The overall fee charged by NIOS for both the secondary and senior secondary levels is much less than that charged by KVs. Against this difference in costs to learners (which is analysed elaborately in Subsection 4.5.6), what are the features of the throughput achieved by NIOS in comparison with that of KVs?

4.4.3 Comparative effectiveness/performance of NIOS, KVs and JNVs

In terms of the quality of education provided at KVs and JNVs, their output is usually compared with that of IITs²⁰¹. A look at their throughput is in place here.

Table 4.13 Comparative performance²⁰² (Classes X and XII): KVs, JNVs and ‘Other Schools’²⁰³ affiliated with the Central Board of Secondary Education (CBSE)

Class X Results (pass %)							
	2001	2002	2003	2004	2005	2006	2007
KVs	81.80	85.60	84.60	90.44	89.95	90.63	95.64
JNVs	87.00	88.70	88.50	91.40	90.82	91.13	--
Overall (CBSE)	66.60	69.50	68.00	76.60	74.60	77.16	84.44
Class XII Results (pass %)							
KVs	83.90	86.50	88.70	92.78	92.47	92.89	93.14
JNVs	84.20	83.30	85.30	87.70	87.08	90.24	90.11
Overall (CBSE)	75.20	75.20	73.60	80.40	77.80	79.55	80.64

It may be noted that Class XII results of KVs are consistently better than those of JNVs, while JNVs show better results at Class X equally consistently, though the differences in either case are not significant. Looking at the overall percentages against CBSE, these percentages are lower, because students from the “Other Schools” affiliated with CBSE also sit for the same examinations and they do not perform as well as KVs and JNVs. As a result the overall CBSE percentages remain low. Obviously, the “Other Schools” collectively do not perform as well as KVs and JNVs, as generally there is a gap of 10-20 percentage points in the overall pass percentages of the two sets of schools every year.

The point that emerges unambiguously is that in terms of student performance KVs and JNVs are the best government-run institutions for the secondary level of education in the country. And one

²⁰¹ Indian Institutes of Technology (IITs) are world class institutions and IIT graduates are valued all over the world.

²⁰² Derived from “Comparative Result Analysis” at <http://kvsangathan.nic.in/resultanalysis1.aspx> (accessed on July 16, 2007)

²⁰³ Both types of schools, KVs and JNVs, are affiliated with the Central Board of Secondary Education, which prescribes the syllabus, conducts the examinations and also awards certificates. In addition to these two types of schools, there are many other schools all over the country affiliated with the same Board. Many of them are run by private management, some of which charge very high tuition fees, while some are aided. The former are not accessible to those who cannot pay high fees, while the latter cater to masses generally.

may plausibly guess that the pass percentage of the “Other Schools” may hover around 50-60 per cent on average (see the observations following Table 4.19).

4.4.4 Performance of NIOS students

Considering the NIOS data as presented in official documents (see the tables below), the performance of NIOS is really disappointing, but is it really so? Consider the April 2006 results.

Table 4.14 NIOS examination results: April 2006²⁰⁴

	APPEARED (1)		CERTIFIED (2)		PASS % (3)	
	Sr. Sec.	Secondary	Sr. Sec.	Secondary	Sr. Sec.	Secondary
TOTAL	148,883	175,699	47,521	56,489	31.92	32.15
MALE	101,921	119,660	31,130	37,459	30.54	31.30
FEMALE	46,962	56,039	16,391	19,030	34.90	33.96

The confusion lies in confusing certification with pass percentages. The number certified for the relevant award in column 2 is actually the number of students who (at the April 2006 examination) brought the tally of their successfully completed subjects to what is required (i.e. five subjects) for certification. Some of these students may have completed just one subject at this examination, some two, some three and some all the five required. Obviously, there is no problem with the details in the column 2, but what we have in column 3 is misleading and a potential source of error for every estimation based on it, as the percentages are not of the passes, but of those certified for the award out of the number who appeared at this examination. This confusion also manifests itself in a different way (see Table 4.15 below).

²⁰⁴ National Institute of Open Schooling—Examination Results at <http://www.nios.ac.in/oct05.htm> (accessed on July 30, 2007)

Table 4.15**Results by region (April 2006)²⁰⁵**

REGION	Sr. Secondary			Secondary		
	Appeared	Passed	Pass %	Appeared	Passed	Pass %
HYDERABAD	4,651	818	17.59	1,674	381	22.76
PUNE	4,844	1,496	30.88	12,839	4,437	34.56
KOLKATA	9,800	3,195	32.60	15,523	5,433	35.00
GUWAHATI	9,248	3,388	36.63	14,578	6,387	43.81
CHANDIGARH	28,834	9,180	31.84	31,943	8,277	25.91
KOCHI	2,419	424	17.53	1,084	341	31.46
DELHI ZONE –I	34,303	9,776	28.50	33,992	8,847	26.03
NOSHQ	779	277	35.56	672	295	43.90
JAIPUR	2,205	772	35.01	3,802	1,607	42.27
PATNA	3,509	1,737	49.50	5,489	2,797	50.96
ALLAHABAD	6,837	2,952	43.18	4,796	2,311	48.19
DELHI ZONE –II	38,761	12,735	32.86	44,588	13,653	30.62
BHOPAL	2,693	771	28.63	4,719	1,723	36.51
Total	148,883	47,521	31.92	175,699	56,489	32.15

Whether we look under the Secondary or the Senior Secondary column, what appears in the passed column is actually the number of students who completed passes in five subjects and so are qualified for certification, irrespective of the actual number of subjects they cleared at the said examination. Here the word “passed” is used to mean certified (of Table 4.14). Seemingly, it is the lingering influence of the conventional system and the erroneous application of the notion of Full Time Equivalent (FTE) that leads to this confusion. NIOS fails to see that they are operating at the level of subjects, not full courses/programmes as is done in the conventional system. This confusion persists throughout the NIOS records/data pertaining to the performance of their students and their results (see Table 4.16 below).

In over 17 years and across 34 examination sessions, except for November 1992, November 1994 and May 2003 examinations, the percentage of certification has never crossed the 40 per cent mark. Most are at 20 per cent and 30 per cent and some go below 20 per cent. Like NIOS themselves (as they do in Tables 3.14 and 3.15), the casual reader will read the percentages as pass percentages, which they are not.

²⁰⁵ National Institute of Open Schooling—Examination Results at <http://www.nios.ac.in/oct05.htm> (accessed on July 30, 2007)

Table 4.16 Profile of examination results: 1991-2006²⁰⁶

Exam	Secondary			Sr. Secondary		
	Appeared	Certified	%	Appeared	Certified	%
Jan-91	21,560	5,050	23.42	13,406	3,730	27.82
Jun-91	23,076	5,388	23.35	18,116	5,185	28.62
Nov-91	15,193	3,622	23.84	10,504	3,055	29.08
May-92	24,507	6,700	27.34	15,191	4,736	31.18
Nov-92	13,683	3,328	24.32	8,633	3,716	43.04
May-93	34,035	9,140	26.85	22,275	6,700	30.08
Dec-93	18,418	4,431	24.06	13,019	4,942	37.96
May-94	37,860	12,067	31.87	28,054	10,864	38.73
Nov-94	18,200	4,899	26.92	14,209	6,196	43.61
May-95	25,393	4,692	18.48	22,383	5,169	23.09
Nov-95	28,161	4,895	17.38	22,644	5,893	26.02
May-96	50,640	15,082	29.78	34,049	7,900	23.20
Nov-96	31,287	8,141	26.02	21,786	5,258	24.13
May-97	63,387	17,889	28.22	39,483	9,138	23.14
Nov-97	38,640	9,268	23.99	24,283	5,559	22.89
May-98	76,845	18,204	23.69	48,202	11,538	23.94
Nov-98	45,326	9,674	21.34	28,955	6,773	23.39
May-99	90,380	25,309	28.00	57,761	13,426	23.24
Nov-99	53,320	16,366	30.69	34,806	9,777	28.09
May-00	98,948	31,818	32.16	71,453	13,024	18.23
Nov-00	52,039	13,625	26.18	36,842	8,808	23.91
May-01	12,2101	33,849	27.72	93,175	17,858	19.17
Nov-01	58,880	15,804	26.84	48,403	12,267	25.34
May-02	143,782	48,653	33.84	100,942	23,579	23.36
Nov-02	70,263	20,309	28.90	56,100	14,913	26.58
May-03	172,533	99,250	57.53	117,872	39,603	33.60
Nov-03	69,896	23,663	33.85	70,385	20,181	28.67
May-04	237,300	77,570	32.69	170,052	36,660	21.56
Nov-04	100,680	26,786	26.61	84,474	17,999	21.31
Apr-05	167,169	46,728	27.95	136,560	36,436	26.68
Oct-05	86,262	26,743	31.00	75,605	24,247	32.07
Apr-06	175,699	56,489	31.46	148,883	47,521	31.92
Oct-06	79,170	28,054	35.43	69,834	22,843	32.71
Apr-07	182,680	59,710	32.69	162,371	51,447	31.68
Total	252,7313	793,196	31.38	1,920,710	516,941	26.91

The above table presents a distorted and incomplete view of the throughput of NIOS year after year. The actual features of the student performance at NIOS emerge only when we look at results/performance by subject²⁰⁷ (see Tables 4.17 and 4.18 below).

²⁰⁶ National Institute of Open Schooling—Examination Profile at <http://www.nios.ac.in/exampro.htm> (accessed on July 30, 2007)

²⁰⁷ National Institute of Open Schooling—Subject-wise pass percentage at <http://www.nios.ac.in/subacad.htm> (accessed on July 30, 2007)

Table 4.17 Pass percentage at the secondary level by subject

Subject	Apr-04		Apr-05		Oct 04		Oct 05	
	APP.	PASS %						
201 HINDI	143,907	77.31	94,198	82.03	23,382	71.49	13,892	73.50
202 ENGLISH	162,095	54.27	115,087	60.32	45,484	47.64	32,041	54.19
203 BENGALI	623	77.68	551	69.87	150	70.66	155	46.45
204 MARATHI	1,397	90.40	1,515	81.78	111	81.08	168	69.04
205 TELUGU	1,135	57.79	573	80.45	272	55.14	49	46.93
206 URDU	1,939	91.69	1,036	79.82	237	81.85	199	78.39
207 GUJRATI	154	82.46	160	87.50	12	66.66	10	90.00
208 KANNAD	43	51.16	52	46.15	10	10.00	8	37.50
209 SANSKRIT	13,598	53.38	7,650	44.47	3,667	49.85	2,405	41.74
210 PUNJABI	4,852	82.52	4,265	79.60	455	73.18	425	74.11
228 ASSAMESE	52	90.38	65	72.30	10	50.00	17	58.82
231 NEPALI	1,266	82.70	1,253	58.26	282	47.51	485	40.00
232 MALAYALAM	117	93.16	359	93.03	32	75.00	12	91.66
211 MATHEMATICS	124,254	55.92	76,922	42.59	34,307	27.11	28,787	36.97
212 SCIENCE	153,455	54.30	96,415	40.81	38,260	39.01	36,239	39.09
213 SOCIAL SCIENCE	148,773	64.63	101,732	53.43	35,694	43.12	32,901	45.00
214 ECONOMICS	59,022	71.11	44,049	65.39	13,280	64.63	11,560	55.19
215 BUSINESS STUDY	26,010	62.83	26,463	60.84	7,501	48.31	7,544	56.28
216 HOME SCIENCE	66,046	75.82	53,764	64.37	11,007	53.89	11,984	52.11
217 TYPING (HINDI)	487	54.00	224	62.05	124	73.38	66	56.06
218 TYPING (ENG)	5,259	60.42	4,109	65.19	1,331	63.26	1,038	60.50
219 WORD PROC.	34,890	83.15	23,282	84.63	4,499	71.92	2,844	77.77
222 PSYCHOLOGY	2,559	49.55	3,642	44.12	522	33.52	1,276	30.48
223 BHA. CUL. & HER.	1,380	69.92	2,220	54.68	339	42.18	691	49.34

Table 4.18 Pass percentage at the senior secondary level by subject

SUBJECT	APR - 02		APR - 03		JUNE - 04		APR - 05	
	APP.	PASS %	APP.	PASS %	APP.	PASS %	APP.	PASS %
301 HINDI	45,859	73.28	56,966	76.22	78,433	72.63	62,488	69.46
302 ENGLISH	60,306	64.88	75181	66.66	105177	62.51	84433	64.09
306 URDU	458	75.55	615	90.24	784	74.23	747	65.06
311 MATHEMATICS	14,660	35.74	17,859	47.33	24,874	47.70	18,606	46.00
312 PHYSICS	16,052	33.40	22,174	43.70	33,610	33.57	21,595	36.73
313 CHEMISTRY	15,131	46.49	20,960	53.90	30,857	34.79	20,956	39.78
314 BIOLOGY	9,794	53.39	13,906	62.41	20,848	41.16	13,983	48.94
315 HISTORY	26,941	58.84	32,190	63.10	40,937	65.37	33,855	69.46
316 GEOGRAPHY	20,727	56.07	23,273	65.67	28,133	49.19	21,092	52.67
317 POLITICAL SC.	32,556	55.29	39,934	68.98	51,007	55.96	42,927	62.49
318 ECONOMICS	28,927	50.35	33,291	63.43	37,663	46.42	34,942	55.62
319 COMMERCE	13,056	62.97	14,573	67.88	16,602	59.40	16,146	63.82
320 ACCOUNTANCY	10,942	43.82	12,181	49.22	13,918	45.05	13,228	43.43
321 HOME SCIENCE	19,424	66.00	23,442	68.12	31,596	64.99	26,853	64.41
322 TYPE (HINDI)	293	60.75	258	61.24	206	65.05	182	60.99
323 TYPE (ENGLISH)	3,999	56.94	3,468	58.56	2930	52.29	2,264	58.17
324 STENO (HINDI)	51	39.22	30	40.00	15	40.00	19	47.37
325 STENO (ENGLISH)	243	30.45	140	35.00	69	37.68	120	36.67
326 SEC. PRACTICE	5,585	63.08	6,158	70.70	6,552	59.55	4,942	67.08
327 WORD PROCESS	14,550	74.82	17,960	79.26	23,067	61.09	18,771	62.63
328 PSYCHOLOGY	3,432	59.73	4,239	67.02	4,691	48.33	4,269	65.10
330 COMPUTER SCIENCE			2,396	45.83	4,133	30.68	4,338	41.22
331 SOCIOLOGY					8,286	72.88	13,024	72.57
332 PAINTING							1,617	65.18

Listed above are subject-wise results from various secondary and senior secondary examinations chosen randomly. Subject-wise success (see Tables 4.17 and 4.18) at both the levels shows a much better (and certainly correct) profile than the distorted details in Tables 4.14 through 4.16. We notice that students generally perform much better in humanities and social sciences, such as Hindi, history and sociology, while success rates are relatively lower in science subjects, such as mathematics, physics and chemistry.

To show how results may be computed to present the correct picture of the performance of NIOS students, presented below (see Table 4.19) is the existing and available data (four cases chosen randomly) reworked in terms of subjects. We have taken the data from the results of four examinations, two each of the years 2005 and 2006.

Table 4.19 Corrected NIOS performance profile (a sample based on limited data)²⁰⁸

Examination held in	Level (Secondary or Senior Secondary)	# students (head count) appeared = (x)	# subjects they appeared in = (y)	# subjects they passed in = (z)	Average no. of subjects each student appeared in = (y/x)	Percentage of passes in subjects = (z/y) 100
April 2006	Secondary	175,186	711,403	452,914	4.10	63.67
	Senior Sec.	148,747	520,440	342,932	3.50	65.89
Oct. 2006	Secondary	79,170	167,768	74,675	2.10	44.51
	Senior Sec.	69,834	132,387	69,632	1.90	52.60
April 2005	Secondary	167,169	659,586	388,974	3.95	58.97
	Senior Sec.	136,560	461,397	275,528	3.38	59.72
Oct. 2005	Secondary	86,262	184,796	89,579	2.10	48.47
	Senior Sec.	75,605	144,497	74,480	1.90	51.54
Totals for 4 examinations	Secondary	507,787	1,723,553	1,006,142	3.39	58.38
	Senior Sec	430,746	1,258,721	762,572	2.92	60.58

On average (with respect to the above data):

- each student sits for around four and two subjects in the April and the October examinations respectively,
- the overall results in the April examinations are better than those in the October examinations,
- the number of examinees in April is usually about twice that in October,
- all the subject-based pass percentages are not below 45 per cent mark, and
- the overall pass percentage in the subjects appeared at the secondary level is 58.38, and at the senior secondary level is 60.58.

The subject-wise pass percentages and the overall profile of NIOS results, as shown above, though certainly not superlative like those of KVs/JNVs, appear to be comparable to the results of “Other Schools” (see the discussion following Table 4.13). It, therefore, appears plausible to assume that the performance of NIOS in terms of its throughput is comparable to that of the ‘Other Schools’ affiliated to CBSE, i.e. the performance of NIOS is like that of an average school in India—not a mean achievement, considering the background of the NIOS intake! But this conclusion needs to be confirmed.

²⁰⁸National Institute of Open Schooling—Examination Results at <http://www.nios.ac.in/oct05.htm> (accessed on July 30, 2007)

4.4.5 Effectiveness of NIOS: position in the national profile

Consider the national profile of Secondary and Senior Secondary examination results (2003-04 and 2004-05) as compiled by the Council of Boards of School Education (COBSE) in India, New Delhi, from the data contributed by 37 State Boards of Secondary and Senior Secondary Education (see Tables 4.20 and 4.21). Almost all the Boards are represented here, and results pertain to all the government, private aided and private unaided schools—a realistic picture of the performance of students at the levels concerned and that of the effectiveness of the systems countrywide.

Table 4.20 National profile of secondary and senior secondary examination results (2003/04-2004/05)

S. N.	Names of School Boards	2003-04 Results ²⁰⁹		2004-05 Results ²¹⁰	
		Secondary	Senior Sec.	Secondary	Senior Sec.
	Overall pass percentage	57.89	67.42	63.36	70.65
1	<u>Andhra Pradesh</u>	80.41	--	72.41	--
	1a) Board of Secondary Education				
2	<u>Assam</u>	49.80	--	55.54	--
	2a) Board of Secondary Education				
3	<u>Bihar</u>	--	--	70.07	--
	3a) Bihar School Examination Board, Patna				
4	<u>Chhattisgarh</u>	--	--	48.10	67.47
	Chhattisgarh Board of Sec. Education, Raipur				
5	<u>Goa</u>	57.47	74.59	54.90	72.33
	Goa Board of Sec. & HS Education				
6	<u>Gujarat</u>	52.69	60.78	56.49	--
	Gujarat Sec. & HS Education Board				
7	<u>Haryana</u>	59.17	39.21	61.81	54.19
	Board of School Education				
8	<u>Himachal Pradesh</u>	--	60.54	--	68.66
	Himachal Pradesh Board of School Education				

²⁰⁹ A Study of Examination Results 2004, Council of Boards of School Education (COBSE) in India, New Delhi. pp. 16-18.

²¹⁰ A Study of Examination Results 2005, Council of Boards of School Education (COBSE) in India, New Delhi. pp. 14-19.

9	<i>Jammu & Kashmir</i> J&K State Board of School Education	50.34	38.95	50.27	34.07
10	<i>Jharkhand</i> Jharkhand Academic Council, Ranchi	60.96	83.42	71.36	83.82
11	<i>Karnataka</i> 11a) Karnataka Sec. Education Examination Board 11b) Dept. of Pre-University, Karnataka	--	--	63.90	--
12	<i>Kerala</i> Board of Higher Sec. Education	--	59.23	--	75.93
13	<i>Madhya Pradesh</i> 13a) Board of Secondary Education, Madhya Pradesh 13b) Madhmik Shiksha Mandal, M.P., Bhopal (Correspondence) 13c) M. P. State Open School, Bhopal	28.46	65.22	32.60	71.27
14	<i>Maharashtra</i> Maharashtra State Board of Sec. & HS Education, Pune	--	--	58.72	62.60
15	<i>Manipur</i> 15a) Board of Secondary Education 15b) Council of Hr. Sec. Education	39.43	--	43.41	--
16	<i>Meghalaya</i> Meghalaya Board of School Education	--	62.12	--	73.88
17	<i>Mizoram</i> Mizoram Board of School Education, Aizawl	37.00	34.84	45.77	46.90
18	<i>Nagaland</i> Nagaland Board of School Education, Kohima	72.03	--	76.89	78.29
19	<i>Orissa</i> 19a) Board of Sec. Education 19b) Council of Hr. Sec. Education	52.26	--	55.34	--
20	<i>Punjab</i> Punjab School Education Board, Chandigarh	65.91	68.78	--	--
21	<i>Rajasthan</i> Board of Secondary Education, Ajmer	60.08	81.26	50.38	72.24
22	<i>Tamil Nadu</i> State Board of School Education	77.36	--	77.80	76.83
23	<i>Tripura</i> Tripura Board of Sec. Education, Agartala	50.64	48.80	77.80	68.95

24	<u>Uttar Pradesh</u> UP Board of High School & Intermediate Education	--	--	69.71	90.64
25	<u>Uttaranchal</u> Uttaranchal Shiksha Evm Pariksha Parishad	48.12	72.95	49.15	73.35
26	<u>West Bengal</u> 26a) West Bengal Board of Sec. Education, Kolkata 26b) West Bengal Board of Madrasah Education 26c) Rabindra Mukta Vidyalaya	71.61 65.97 29.93	-- 34.01 --	70.52 66.37 --	61.48 -- --
27	<u>Delhi</u> Central Board of Secondary Education, New Delhi	76.62	80.36	77.52	81.00

The above profile of throughput percentages has been abstracted into four levels: Boards with pass percentages below or equal to 40, between 41 and 60, between 61 and 80 and those between 81 and 100 (see Table 4.21 below). At the secondary level, a majority* of the Boards (41.7 per cent) are at level II and at the Senior Secondary level, the majority* (50.0 per cent) are at level III. Interestingly, the performance of NIOS in terms of passes in subjects (see Table 4.19) tallies with the majority groups at the secondary as well as the senior secondary levels.

Table 4.21 Effectiveness/performance of NIOS: place in the national profile

Levels	Throughput rate	Case of results at the Secondary level		Case of results at the Senior Secondary level	
		% of Boards	Place of NIOS	% of Boards	Place of NIOS
I	00-40 per cent	16.7 per cent		16.7 per cent	
II	41-60 per cent	41.7 per cent *	With 58.38 per cent subject passes	18.7 per cent	
III	61-80 per cent	39.6 per cent		50.0 per cent *	With 60.58 per cent subject passes
IV	81-100 per cent	02.0 per cent		14.6 per cent	

It is true that this picture will vary depending on the way the throughput rates are classified, but it is clear that the performance/effectiveness of NIOS is comparable to that of most schools in the country (read the comments/observations on Tables 4.13 together with those on Tables 4.19 and 4.21). Comparing the averaged subject-based throughput rates of NIOS (see the last two rows in Table 4.19) with the throughput rates of different Secondary/Senior Secondary Boards in the country (see Table 4.20), we notice that at the secondary level, NIOS performed better than 13 and 12 State Boards and worse than 10 and 13 in 2004 and 2005 respectively. At the senior secondary level, NIOS performed better than 11 and 8 State Boards and worse than 11 and 18 in 2004 and 2005 respectively. The *Relative effectiveness ratio* for NIOS against various comparator Boards of Education in relation to 2004-2005 results is shown in Table 7.4.

4.5 Cost-efficiency of NIOS

Before looking into the cost issues of NIOS in the present situation, we review three earlier studies.

4.5.1 *The First Cost Study (1986): Open School (1982-86)*

As narrated earlier, the Government of India started the Open School²¹¹ on an experimental basis in 1979 as a project within the Central Board of Secondary Education, New Delhi. It was to cater “to the needs of school drop-outs, working adults, house-wives and aspirants from socio-economically disadvantaged sections of society. It (incorporated) flexibility and openness in the system and this (was) a step towards meeting the needs of knowledge seekers, mostly second chance learners, who (could not) pursue formal education due to domestic, economic and other considerations”²¹². The goals²¹³ of the school were as follows:

- i) to offer a parallel non-formal system as an alternative to formal schooling,
- ii) to provide an opportunity of education to out of school learners, school dropouts, working adults, housewives, learners from disadvantaged sections of society and those living in remote areas of the country,
- iii) to offer bridge/preparatory courses to prepare students for the secondary level courses,
- iv) to offer secondary, senior secondary, technical, vocational and life enrichment courses through distance teaching methods,
- v) to promote an open distance teaching system through research, publications and dissemination of information,
- vi) to offer students outside the institutions, programmes of education equivalent to those available within institutions,
- vii) to measure what the student knows rather than how, when or where he/she learns it; (That is, all knowledge seekers ... (were) to have equal opportunity and the learning process ... (was) not confined to one's youth or to campus environment.), and
- viii) to provide a valuable tool in an educational crisis to solve problems of both quality and quantity.

It may be noted that Open Schooling was seen as a non-formal and more importantly a parallel alternative system (see Subsection 4.1.3) vis-à-vis the day schooling system (called the formal system). Secondly, it aimed at target groups that had remained neglected that far, promising them equivalent (to that available in the formal system) education. And thirdly, it perceived itself as an operational tool that could solve the problems of access, equity and quality in educational dispensation in the country.

Also, worthy of note is the fact that it adopted most of the salient features of openness-- “ i) open entry system, ii) flexibility in the scheme of studies, iii) flexibility in examination schemes, iv) multilevel registration, v) multi-media instructional material, vi) nominal fees with full exemption

²¹¹ As narrated in Section 4.2, Open School was the precursor of NOS, which was eventually upgraded as NIOS.

²¹² *Report on Study of Cost Effectiveness in Open School, New Delhi*, (1986), Northern India Regional Council of The Institute of Cost and Works Accountants of India, New Delhi. p. 5.

²¹³ Ibid. pp. 6-7.

for weaker sections of society and vii) periodical contact programmes”²¹⁴—a very bold stance in a super-conservative socio-educational environment.

The Government of India had been meeting its net expenses since 1983-84²¹⁵. With every passing year, the expenses increased along a very steep curve. For example, the budget estimates for 1986-87 were INR 6,858,000 against the actual expenses of INR 4,696,000 for 1985-86, an increase of 46 per cent. Somewhat unusual for the official experiences and also for the Government, this unthinkable rise motivated a cost study of the operation. The Northern India Regional Council of the Institute of Cost & Works Accountants of India was commissioned (in May 1986) to undertake a cost-benefit analysis of the Open Schooling system and also to assess the reasonableness of the budget estimates for 1986-87. It was to be a comparative study involving the Open School, the Patrachar Vidyalaya²¹⁶ (translation: Correspondence School) run by Delhi Administration, Kendriya Vidyalayas run by the Kendriya Vidyalaya Sangathan and the Government Schools of Delhi Administration. The schools compared are profiled in the following table.

Table 4.22 Institutional profiles²¹⁷ of institutions involved in comparison

School systems →	Open School	Patrachar Vidyalaya, Delhi Amin.	Delhi Admin. Schools	Kendriya Vidyalayas
Enrolment: 1882-83	3,164	--	661,987	313,000 (Approx.)
Enrolment: 1883-84	6,297 (+99.02 %)*	11,322	701,642 (+5.99 %)	338,671 (+8.20%)
Enrolment: 1884-85	7,328 (+16.37 %)	14,289 (+26.21%)	748,744 (+6.29%)	366,885 (+8.33%)
Enrolment: 1885-86	10,172 (+38.81%)	15,923 (+11.44%)	--	--
Enrolment: 1886-87	11,000 (+8.14%)(Projection)	--	--	--
Features	Class V pass the minimum entry qualification for bridge courses and class VIII pass for secondary classes; Hindi as well as English used as the medium of instruction; registration valid for 5 years; students to choose any 5 subjects and pass in as many of them at a time as they could; certificates issued on clearing all the 5 subjects within 5 years.	Correspondence education; minimum entry qualification VIII pass; classes from IX to XII; all subjects to be studied simultaneously and all subjects to be cleared at one sitting; mainly for Delhi region.	Day scholar system; medium of instruction - Hindi; classes from VI to XII; registration done mainly at the lowest level with the provision of filling vacancies at other levels if required.	Day scholar system; sciences taught in English and social sciences in Hindi; classes from I to XII; caters mainly to the children of Public Sector and Govt. Employees with transferable (across States) jobs.

* Figures in parentheses present the increase percent.

²¹⁴ Ibid. p. 6.

²¹⁵ Ibid. pp. 7-8.

²¹⁶ Run by Delhi Administration, this school used Hindi as the medium of instruction and functioned like a traditional correspondence school with a small component of face-to-face tutorials.

²¹⁷ Based on the Report on Study of Cost Effectiveness in Open School, New Delhi, (1986), Northern India Regional Council of The Institute of Cost and Works Accountants of India, New Delhi. pp. 11-12.

The annual increase of about 6 per cent in the enrolment of Delhi Administration Schools represents the general trend at most schools all over the country. With the limited data that we have, an 8 per cent annual increase at the Kendriya Vidyalayas seems to be consistent. The Patrachar Vidyalaya shows higher increases, while the Open School shows much higher levels of enrolment, but the increments are not consistent. It may be for this inconsistency that their projection for 1986-87 mimics the trend at the Kendriya Vidyalayas. What is clear, however, is that enrolments at the Open School would rise significantly as soon as they launched their senior secondary and vocational courses and that the flexibility they provide would tell upon the enrolments at the Patrachar Vidyalaya, which in fact was eventually closed. The students still on its rolls were transferred to NIOS this year.

It was “considered appropriate to assess the unit cost per student, i.e. cost on enrolment basis. The approach has been deemed realistic since the scheme of studies in the Open School is in the nature of providing the maximum and concentrated attention to the student in the year of enrolment. Thereafter the link with the school is generally for applying to sit for examinations and obtaining the results thereof”²¹⁸. Further, the costs have been divided into two types: fixed and variable. And in this analysis²¹⁹ the fixed costs included the salary and benefits of office personnel and the expenses for running offices, while the remaining expenses including those on limited capital items were treated as variable costs, i.e. the costs that would vary depending on the number of students registered and managed annually. Since all the four systems were affiliated with the Central Board of Secondary Education (CBSE), the examination fee collected from students was passed on to CBSE, and therefore not included in the analysis. A similar approach was followed in the case of the Patrachar Vidyalaya, as there were no leftovers from year to year in their case. As for the Kendriya Vidyalayas and the Delhi Administration Schools, expenses were calculated under the routine budget heads used by the respective systems. Based on actual expenditures, the following table presents a comparative view of the costs per student per year in the four systems.

²¹⁸ *Report on Study of Cost Effectiveness in Open School, New Delhi*, (1986), Northern India Regional Council of The Institute of Cost and Works Accountants of India, New Delhi. p. 13.

²¹⁹ Ibid. p. 14.

Table 4.23 Comparative average cost (INR per student per annum)²²⁰

Institution	Academic year	Enrolment	Expenditure in INR '000	Fixed cost per student	Variable cost per student	Total cost per student
Open School	1983-84	6,297	2,802	211	234	445
	1984-85	7,328	4,454	228	380	608
	1985-86	10,172	6,889	319	358	677
	1986-87 (Estimates)	11,000	8,610	306	477	783
Patrachar Vidyalaya	1983-84	11,322	2,441	133	83	216
	1984-85	14,289	2,687	128	60	188
	1985-86	15,923	2,757	105	68	173
Kendriya Vidyalayas	1982-83	313,000	260,962	130	704	834
	1983-84	338,671	323,634	147	809	956
	1984-85	366,885	402,243	175	921	1096
Delhi Admin. Schools	1982-83	661,987	559,561	209	636	845
	1983-84	701,642	675,528	237	726	963
	1984-85	748,744	795,124	253	809	1062

We notice that the costs per student per annum at Kendriya Vidyalayas and Delhi Administration Schools are comparable and nearly four times that at the Patrachar Vidyalaya in 1983-84. On the other hand, of the two distance education systems, the Open School is costlier than the Patrachar Vidyalaya. The investigators identified the causes of these differences:

- the Open School bought paper for their study materials from the open market at commercial rates, while the Patrachar Vidyalaya got it from the Government at subsidised rates,
- the Open School operated in hired premises paying rents at commercial rates, while the latter was lodged in government premises for which they did not pay any rents (in fact, except the Open School, all the other three institutions had the advantage of government rent-free premises),
- the Open School had to pay rents for the hired premises to run their contact programmes and also higher levels of remuneration to tutors to manage their contact sessions, while Patrachar Vidyalaya used government schools rent free to run their contact sessions, and
- the quality of the study materials prepared by the Open School had a national character and were of a better quality in terms of both the content and the presentation (in pedagogic terms) and, therefore, required higher levels of remuneration and expenses for course writers and the preparation of materials respectively.

The above data can be tabulated in a different way to assess the relative cost efficiency of the four institutions.

²²⁰ Ibid. p. 27.

Table 4.24 Relative cost-efficiency of the institutions compared

Institution	1982-83		1983-84		1984-85		1985-86	
	c/s/y*	CE**	c/s/y	CE	c/s/y	CE	c/s/y	CE
Open School (OS)			445	1.00	608	1.00	677	1.00
Kendriya Vidyalayas (KVs)	834	1.00	956	2.15	1096	1.80		
Patrachar Vidyalaya (PV)			216	0.49	188	0.31	173	0.26
Delhi Admin. Schools (DASs)	845	1.01	963	2.16	1062	1.75		

Averages over two years: 1983-1985	OS	KVs	PV	DASs
Average cost per student per year	526.5	1026.0	202.0	1012.5
Relative cost taking OS Costs as the norm	1.00	1.95	0.38	1.92

* cost per student per year (c/s/y)

** CE, i.e. cost-efficiency (Ratio of the norm with what it is compared to; under 1982-83, we take KVs as the norm and under 1983-84, 1984-85 and 1985-86 we take OS as the norm.)

Overall,

- the Open School managed a student at less than half the cost incurred by the conventional schools in 1983-84 and slightly more than half the cost they incurred in 1984-85,
- the cost per student at KVs was more or less the same as that at the Delhi Administration Schools in 1982-83,
- of the two distance education operations, the Patrachar Vidyalaya managed a student nearly at one-quarter of the cost for a student at the Open School in 1985-86, and
- looking at the averages per year (worked out over two years: 1983-1985), for these two years, the cost per student per year at the Open School is slightly more than half of that at the two conventional schools (KVs and DASs), while it is nearly three times that at the Patrachar Vidyalaya.

The first thing that struck the investigators was that the mix in the student population, the range of subjects offered and the facilities provided by the four institutions differed significantly. They took note of these differences and also the potential of the Open School, and concluded that the Open School was “doing a pioneering role in taking education to the doorsteps of those citizens of the country who had lost all hopes of brightening their career through proper education”.....that it was “fulfilling the social objectives of the Government...and must be pursued continuously” and that “the budget requirement of INR 8,610,000 projected by the school (for 1986-87) appear(ed) to be reasonable”²²¹.

Though the Open School seemed to be doing well cost-wise, it did not show any significant advantage with regard to the equity issue. The profile of students²²², who attended the Open School during the investigated five years 1981-1986 averaged out per year, is:

- General: 85 per cent,
- SC/ST: 15 per cent,

²²¹ Ibid. p. 34.

²²² Ibid. p. 35.

- Male: 72 per cent,
- Female: 28 per cent.

The participation of SC/ST students was much below the reservation norm of 22½ per cent (see Footnote 22) and that of women students also was low. Clearly, though the Open School seems to be addressing the issue of access, it does not seem to have made any significant dent in that of equity. It was, however, too early to make a dependable judgment.

4.5.2 The Second Cost Study (1997): National Open School (1990-96)

The Open School was remodeled as an autonomous institution in 1989 and renamed “National Open School” (NOS). Gaba’s study²²³ on the relative cost-effectiveness of NOS appeared in 1997. Some of its findings/details, which are relevant to the present study, are touched upon here, though briefly.

- Government grants to NOS declined progressively from 34 per cent of its income in 1990-91 to just 2.08 per cent in 1995-96, as the share of NOS’ own earnings in its overall income increased from 66 per cent in 1990-91 to 97.92 per cent in 1995-96²²⁴, student fees and examination fees being the main sources of revenue.
- The study shows that the recurring cost per student kept fluctuating till 1992-93, but recorded gradual rise beginning 1993-94—INR 697.56 in 1990-91, INR 905.20 in 1991-92, INR 708.67 in 1992-93, INR 820.27 in 1993-94, INR 1030.00 in 1994-95 and INR 1112.95 in 1995-96. “Recurring cost” has been defined to include “all sorts of costs that must be met year after year...(including)...salaries of teaching and non-teaching staff, maintenance of buildings and equipment, stationery, rent of building, personal contact programme, etc.”²²⁵ The rise in costs has been attributed to various measures initiated and introduced in 1993-94 to improve the quality of printed study materials and to increase the number of contact programmes per subject. However, the document does not indicate how the costs were computed.

Of greater interest is the cost comparison presented in the study²²⁶:

Table 4.25 Cost comparison: NOS and other types of schooling (1990-91)

Type of Schooling System	Number of students	Cost per student (INR)	Relative cost-efficiency
National Open School	40884	0637.00	1
Kendriya Vidyalayas	30990	0904.52	1.42
State Govt. Schools	17741	1019.04	1.60
Aided Schools	33812	0969.62	1.52
Unaided Schools	74115	0747.63	1.17

²²³ Gaba, A. K. (1997), “Is Open Schooling in India Really Cost Effective” in M. Mukhopadhyay and M. Parhar (Eds.) *Open and Distance Education*, Jawahar Publishers and Distributors, New Delhi.

²²⁴ Ibid. p. 120.

²²⁵ Ibid. p. 124.

²²⁶ Ibid. p. 125.

The data pertaining to other schooling systems was taken from Aggarwal, I. P. (1991), *School Education*, Arya Book Depot, New Delhi.

Apart from some confusion in the details, as the NOS cost per student here varies from that described above, the comparison is not instructive as the study does not show how the computation was done. However, a point to note is that by 1991, NOS had already become one of the largest schooling systems in the country. Further, the Efficiency Ratio added to the details indicates the comparative cost-efficiency of NOS, which we will refer to later in this study.

4.5.3 The Third Cost Study (2006): National Institute of Open Schooling (2005-2006)

National Open School (NOS) was upgraded to function as the apex institution for school-level ODL operations and named “National Institute of Open Schooling” (NIOS)²²⁷ in 2002. It conducted its own cost study internally in 2006, exactly 20 years after the first cost study on Open School (see Subsection 4.5.1). Presented below (see Table 4.26) is the abstract of the said comparative study, which involves Navodaya Vidyalaya Samiti Schools, Kendriya Vidyalaya Sangathan Schools and the National Institute of Open Schooling.

Table 4.26 Comparative costs per student at JNVs, KVs and NIOS²²⁸

(Ref. the 10th Five Year Plan: 2002-2007) [Funds in INR]

Head	Navodaya Vidyalaya Samiti Schools	Kendriya Vidyalaya Sangathan Schools	National Institute of Open Schooling	1
Total number of schools (in the system)	551 (approved, but only 539 in operation)	931	1825 (AIs) + 920 (AVIs) = 2745	2
Cumulative enrolment <i>(All the classes put together)</i>	180,391 (as on 3.06) <i>(On average nearly 327 students per school)</i>	911,993 <i>(On average nearly 980 students per school)</i>	1,427,000 <i>(All the enrolees put together—each registration valid for five years)</i>	3
Average yearly enrolment	30,000 <i>(about 55-65 per school)</i>	100,000 <i>(about 102-108 per school)</i>	289,000 (2005-06) <i>(289,905 actual)</i>	4
i) Total grant during the 10 th Five Year plan (Plan and Non-plan grants)	31,678,200,000	36,300,000,000	273,800,000* <i>(from Non-Plan)</i> <i>(9.57 per cent of the total)</i>	5
ii) Expenditure from Own Generated Funds	--	??	2,585,800,000 <i>(90.43 per cent of the total)</i>	6

²²⁷ See Section 4.2 for details.

²²⁸ This abstract was very kindly made available by NIOS in July 2007.

<i>Total amount available for five years (i + ii)</i>	31,678,200,000	36,300,000,000	2,859,600,000 <i>(100 per cent)</i>	7
Average grant/expenditure per year	6,335,640,000	7,260,000,000	571,920,000	8
Average cost funded by Government per student per year	35,121	12,000** ??	1,906*** (1,973)	9
<i>Percentage of Government's contribution to the average cost per student</i>				
	<i>100 per cent</i>	??	<i>9.57 per cent</i>	10
<i>Cost ratio w.r.t the norm (cost at NIOS)</i>	<i>17.80: 1</i>	<i>6.08: 1</i>	<i>1:1</i>	11

* Amount spent from self-earned income of NIOS (non-plan)

** Includes expenditure from VVN and Public Sector's contribution over and above Plan and Non-Plan grants from MHRD.

*** This included the cost of books which is INR 500/- per candidate.

Source: *KVS Annual Report (2005-06), NVS Annual Report (2005-06) and NIOS at a Glance (2006)*.

There are a few difficulties in interpreting this abstract:

- The study does not consider the actual expenditures of the three schooling systems. Instead, it starts with the 10th Five Year Plan (2002-2007) budget funds approved for and granted to the three institutions. From those figures, it computes the funding available to each one of them for each of the five years of the plan period. Any other institutionally-generated income is also taken into consideration. The number of students registered by the three institutions in the year 1985-86 is taken as the norm for the respective institutions and then costs per student are computed simply by distributing the available funds over the number of students enrolled.
- The study does not consider how different one institution is from the other, nor how they spend and on what.
- Furthermore, in the case of the KVAs an additional sum of money is assumed to have been spent spread over the five years of the plan, though the related Annual Report of the Kendriya Vidyalaya Sangathan does not make any clear mention of such a source/spending.

Additional details (row- and column-wise) facilitate the interpretation of the available data.

Row 2 ,Column 4: NIOS does not have any schools. It works through Accredited Institutions (AIs) and Accredited Vocational Institutions (AVIs).

Row 3, Column 1: Cumulative enrolment is not the same for NIOS and the other two types of schools. For NIOS, it represents the total number of the students (enjoying a stretched span of 5 year registration) on the rolls in 2005-06, while for the other two systems, it represents the total number of students (classes I to XII or VI to XII as the case may be) on the rolls in 2005-06.

Row 4, Column 4: 289,000 is certainly not the average yearly enrolment at NIOS (the exact figure for 2005-06 was 289,905). Similarly, for NVS schools different documents quote different figures, but here we take the listed figure 30,000 on board.

Row 8, Column 1: A grant is not the same thing as the expenditure, nor are they necessarily equal.

Row 9, Columns 1, 3 and 4: In the column of Kendriya Vidyalaya Sangathan Schools, $(7,260,000,000 \div 911,993) = 7961$ and not 12,000. Of course, there is a footnote indicating that some more funds are involved, but then all those funds are not provided by the Government. VVN (Vidyalaya Vikas Nidhi, i.e. School Development Fund) is built on payments by students, not by the Government. Again, in the case of NIOS, most of the expenditure has come from their own earnings, not from the Government.

Row 9, Column 4: The correct figure for NIOS is INR 1,973 not INR 1,906.

Rows 10 and 11 have been added to the original abstract to highlight the relative costs. Also, various derived details have been added in some of the cells to enhance the details.

Assuming that the approach adopted for computing the per student cost per year is rational, one can see that a student at a Navodaya Vidyalaya costs nearly 18 times that at NIOS and a student at a Kendriya Vidyalaya more than 6 times.

4.5.4 Computation of the cost-efficiency of NIOS

Before attempting to compute the cost-efficiency of NIOS today, it's helpful to reflect on the three studies discussed above (see Subsection 4.5.1, 4.5.2 and 4.5.3) and outline the various basic facts that should inform and guide any computation pertaining to NIOS as it operates now.

Comments on the Studies of 1986, 1997 and 2006

The major significance of all the three studies for the present one is that they serve as reference points two decades apart to build comparisons across a long period of time. Further, they are instructive in terms of the methodology of computation they have used.

- The first two studies have used the actual expenditure data, while the third has used the budgeted funds as the starting point. In this sense the third study is cruder than the first two.
- In order to find average costs, all the three have ignored the cost differences associated with the different levels of students. For example, the cost per student per year at the XII Class level should be more than that at Class I, VI or X levels, for the simple reason that more qualified, and therefore costlier, teachers are needed at that level.

- In all the three studies, there is no indication of the costs having been amortised over the relevant number of years wherever necessary, for example, the costs incurred on buildings or the course materials in ODL operations.
- Though all the three studies involve ODL institutions and the conventional institutions, none seems to recognise the basic differences between the two systems, as all of them take recourse to FTE approach for computation.
- All the three studies remain handicapped on account of the conventional budgeting framework comprising plan and non-plan components. This framework, unless deconstructed into activity based accounting/analysis, does not promote accuracy in the computation of costs, especially in ODL operations.
- In all the three studies, each student has been deemed as an annual entity, though each of them remains on a course for two years at conventional schools. To get the per student per course cost, the per student per year cost has to be doubled. On the other hand, in the case of ODL students, certification is allowed by cumulative credits. So, annual costing is not relevant here. Instead, computation has to be based on subject related costs.
- The studies, especially the first two, use terms like *cost-effectiveness* without assigning any meaning to them; for example the notion of cost-effectiveness is confused with the notion of unit costs. The present study is specific about such notions (see Chapter 2 for explanations).

These comments notwithstanding, this study too will follow some parts of the same methodology of computation. And wherever a different approach is followed, it will explain and justify why one and not the other approach has been adopted.

4.5.5 The approach adopted for computation in this study

The customary full-time equivalent (FTE) computation used in the conventional systems of education for purposes of cost analysis does not suit such analysis in ODL systems because of the radical flexibilities they offer to students. Experiences of the past few decades have shown that with subjects or credits as the basis of computation (i.e. subject enrolments, subject examinations appeared at, passes in the number of subjects, fee paid/charged per subject, examination fee per subject, and so on), cost analysis in ODL has become easier and much more reliable.

A “subject” is significant as a unit of NIOS operations. Students joining NIOS must complete five subjects successfully to claim certification at the secondary as well as the senior secondary level. They are free to choose any combination of subjects, except that from amongst the language/literature subjects, they must choose at least one, but not more than two. Further, they are allowed to choose two more subjects, in addition to the five required, to try and see what subjects suit them most. Accordingly, students (not all necessarily) take more than five subjects to finally settle for the most suitable five. Once admitted in July/August, NIOS students may remain on the school rolls for five years, during which period they are allowed nine chances (i.e. they have the option to complete five subjects successfully at nine examinations conducted by NIOS during those five years) to clear the five chosen subjects. To accommodate these nine chances, NIOS conducts examinations (in all the subjects on offer for both the levels) twice in an academic year in the months April/May and October/November. There are specific regulations to regulate participation in examinations:

- A student admitted in July/August cannot sit at the Oct./Nov. examination in the same year.

- A student who clears the secondary level examination in a particular year has to log in two academic years necessarily before he/she can clear the senior secondary examination completely.
- If a student fails to complete at least five subjects successfully in five years, he/she needs to seek admission once again to continue studies at NIOS.
- A student may appear for one, two or more subjects at a time; those who want to clear all the five subjects at one go are permitted to do so.
- Fees to sit for examinations are not combined with the admission/subject fees, as students pay examination fees only when they want to sit for an examination and only for as many subjects as they choose.
- Years have no significance here; students become subject-enrolees and must clear subjects to claim certificates. It does not matter in which year the subject is cleared.

This realisation notwithstanding, the financial operations of the ODL systems in most developing countries have to align with budgeting systems of the respective governments, which continue to be based on the traditional plan and non-plan funding regime. Any attempt to deconstruct the recorded accounts to mould them into subject/credit computation is extremely difficult, if not entirely impossible.

The second issue is that of different types of student vis-à-vis different courses and subjects. The services required by and the expenditure incurred on a student on vocational courses, or a student of the I Primary class are not the same as those required by the secondary or senior secondary students. Yet there is no simple way of disentangling the recorded accounts in order to compute various costs for such differing student categories.

In our computations in the following subsections, a rational mix of FTE and subject-based calculations will be followed to arrive at as accurate cost figures as possible. For each category of computation, explanations have been provided in the form of notes.

4.5.6 Basic facts²²⁹ that inform and guide the present cost computation

1. Definitions: Economics, physics and home science are called subjects at NIOS, while secondary and senior secondary programmes are called courses.
2. Admissions begin in July and close in September (with late fee). Admissions for vocational courses also take place during the same time with minor variations in actual dates for the submission of applications for academic and vocational courses.
3. There is a lower age restriction for joining NIOS. Only those who have attained 14 years of age can join the academic courses at NIOS, but there is no upper age limit for being on the rolls.
4. At both the levels—secondary and senior secondary—students must register for at least five subjects (one of which must be a language subject and nobody can take more than two language subjects) of their choice. In addition to these five subjects each applicant is allowed to register for one or two additional subjects in order for them to see which subjects they may be more comfortable with—some applicants do not take advantage of this facility, some take one additional subject and very few take two. Accordingly, they can sit for examinations in seven subjects, but they need to clear only five (at least one of which must be a language subject) to claim the relevant certificate.

²²⁹ Sourced from *NIOS At A Glance-2006*, (2006), NIOS, New Delhi, and *NIOS Prospectus for Academic Courses, 2006-07*, NIOS, New Delhi.

5. A registered student is supposed to benefit from the services (academic support such as tutorials) available at one's study centre during the first year of one's registration. Subsequently, till one clears all the required subjects, one is to be on one's own, leaving room for the students of the new cohort(s).
6. A student pays the examination fee only for the subjects he/she is willing to sit for. It is paid around a month or so before the commencement of the examination. This process is no different for those who take vocational courses.
7. At the secondary level, a student can appear for examinations in all the five required subjects at the end of the first academic year (July-April) in April and claim a certificate if he/she clears all the five subjects. For the senior secondary level, however, one has to have a gap of two years between one's secondary and senior secondary certifications. Of these two years, a student has to be on NIOS rolls for at least one year.
8. If a student fails to claim a certificate (secondary or senior secondary) by the end of the permitted registration span of five years for which he/she remains on rolls, he/she can reregister for another five years, and he/she will be given exemption in the subjects (at the most two) that he/she may have cleared already. Further, there is no restriction on failures—one may appear in a subject as many times as one needs to clear it.
9. A failure from any other schooling system, who may join NIOS in July in a particular year, is permitted to sit for the Oct./Nov. examination in as many subjects as he/she wants to. Besides, he/she is given exemption in the subjects (at the most two) that he/she may have cleared in the previous system.
10. Each subject is supported by 30 tutorial sessions. Subjects with practicals are supported by 35 tutorial sessions.
11. Assignments are changed every year.
12. Students are expected to submit three assignments per subject. The assignment-responses are assessed and commented on by tutors at study centres. Such assessment, however, is used for formative purposes only.
13. NIOS has a budgetary system that combines earnings and expenditure pertaining to all its courses in one and the same portfolio. It is neither activity driven, nor subject- enrollee based.
14. The Central Government does not use any standard funding formula (i.e. @ per student or per subject enrolment) to fund NIOS. Instead, plan-grants are given to NIOS on the basis of their budget estimates.
15. There is no difference in the fees charged for subjects without and with practicals, but there is a differential examination fee structure that differentiates subjects with practicals from those without them.
16. Though there are concessions available in the case of admission/subject fees charged from different categories of students, there are no such concessions available in the case of fees for examinations. Examinees from all the various categories have to pay the same fee to sit for an examination.
17. Similarly, there are no concessions in the fee charged for additional subjects (beyond the required five) taken by any category of students.
18. Concessions to various categories of students are given at just one level. For example, female SC/ST students (having already benefited from the general concession available to SC/ST students) do not get the fee concession available to female students in the general category.
19. Ex-servicemen and handicapped students also get the same fee concession as is available to SC/ST students.
20. All the Accredited Institutions (AIs) are paid (on the basis of the number of students they register and provide academic and administrative services to) at a flat rate of INR 250 per

student, irrespective of the categories of students concerned and/or the subjects they may have registered for.

21. All the AIs are not necessarily examination centres. Examination centres are paid in accordance with set norms which allow multiple variations depending on factors such as the number of examinees and subjects.
22. Establishment expenditure includes expenses on the regular staff of NIOS, the peripheral staff such as wage earners, and the contractual workers employed by NIOS during the course of a financial year.
23. NIOS staff who work on various projects do not get paid for their work on such projects. That work is counted as a part of their routine work and has to be performed during their usual institutional time.

4.5.7 Cost-efficiency of NIOS: the present study

To discuss the cost-efficiency of NIOS, we have used three basic *abstracts*: enrolment at NIOS, the actual income and expenditure (Non-plan) of NIOS (see Table 4.28) and the actual expenditure of NIOS under its Plan Budget (see Table 4.29).

Table 4.27 NIOS enrolment²³⁰ and apportioning factors

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Foundation Courses (L)	815	1,087	--	--	--	--
Vocational Courses (M)	17,770	22,321	21,211	20,985	22,879	22,166
Total (L + M) = x	18,585	23,408	21,211	20,985	22,879	22,166
Secondary Courses (X)	114,272	143,853	203,518	140,501	151,833	160,791
Sr. Secondary Courses (Y)	72,924	83,122	118,236	97,568	115,193	130,192
Total (X + Y) = y	187,196	226,975	321,754	238,069	267,026	290,983
Grand total (x + y) = z	205,781	250,383	342,965	259,054	289,905	313,149
<i>Apportioning factor for X+Y = y/z</i>	0.9097	0.9065	0.9382	0.9189	0.9210	0.9292

Foundation courses were abolished beginning the academic year 2003-04. To focus on the costs pertaining to secondary and senior secondary students, costs are apportioned proportionately to calculate those for the secondary and senior secondary level students, segregating them from those for vocational courses. The last row in the table above shows the apportioning factor for each year under investigation.

²³⁰ National Institute of Open Schooling—Academic enrolment: <http://www.nios.ac.in/enrolacad.htm> (accessed on July 30, 2007)

Table 4.28**Abstract of NIOS income and expenditure: actuals²³¹ (INR millions)**

Actual Income (INR millions)	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
Admission fee	166.363	236.374	401.105	265.169	285.544	320.597
Examination fee	119.238	146.031	182.920	187.269	190.519	192.656
Other fee	2.748	2.214	6.131	4.852	5.296	4.470
Miscellaneous income	9.102	11.755	10.189	17.872	1.340	41.510
Sale of publications	33.029	34.864	24.269	26.257	29.041	2.907
Interest received					21.079	34.656
COL receipts						0.484
Total (A)	330.480	431.238	624.614	501.419	532.819	597.280
MHRD Grants (Plan)	53.000	53.300	90.000	54.000	36.000	40.500
Unutilised balance carried over	0.571	6.649	8.054	11.845	--	--
Total of Grants (Plan) (B)	53.571	59.949	98.054	65.845	36.000	40.500
Grand Total (income A + B)	384.051	491.187	722.668	567.264	568.819	637.780
Government's contribution in the income of NIOS (%)	13.95	12.21	13.57	11.61	6.33	6.35
Average contribution per year						10.1%
Actual (Non-plan) Expenditure (INR millions)						
Establishment	29.070	40.015	50.146	52.628	57.526	60.897
Examination	53.431	91.025	130.531	119.919	118.167	102.797
Academic activities	0.491	0.00	0.00	0.00	0.00	0.00
Personal contact programme	38.308	53.275	79.063	63.867	62.043	66.814
Office maintenance	45.178	47.068	48.658	44.787	45.410	50.068
Paper and printing	108.639	167.531	187.516	109.398	122.104	151.369
Vehicles	0.00	0.990	0.00	0.00	0.731	0.00
Furniture and equipment	--	1.881	0.561	0.600	1.325	1.681
COL expenditure	--	--	--	0.743	0.619	0.308
Expenditure ... (incurred on Plan Items)	--	--	--	17.155	69.197	41.266
Expenditure of NER trf from NER expenditure					0.00	0.020
Total Non-plan Expenditure (X)	275.070	401.785	496.475	409.097	477.122	475.220
Deferred funds for the next year (A-X)	55.410	29.453	128.139	92.322	55.697	122.060
Plan expenditure (Y) [see Table 4.29 for details]	46.922	51.895	86.209	83.000	105.197	81.766
Grand Total (expenditure X + Y)	321.992	453.680	582.684	492.097	582.319	556.986
Subsidies	18.096	17.247	26.787	40.732	43.386	?

²³¹ Based on various abstracts (of Accounts) very kindly arranged (July, 2007) by NIOS, New Delhi.

Notes on Table 4.28:

Academic activities:writing of course materials, preparation of media materials, etc.
Beginning 2002-03, these activities were shifted to the Plan Head.

Other fees:such as those for duplicate certificates.

Miscellaneous fees: sale of waste materials, tenders.

Publications:sample question papers, prospectus.

Establishment:salaries of the tenured staff and wages of peripheral staff.

Deferred funds:may be considered as profit (in the commercial sense)

Subsidies:these are notional, equivalent to the amount lost (notionally) in the process of allowing concessions to various categories of students, such as SCs/STs.

Table 4.29 Abstract of NIOS plan expenditure: actuals²³² (INR millions)

Actual Expenditure (INR millions)	2002- 2003	2003- 2004	2004- 2005	2005- 2006	2006- 2007
Academic programmes	8.486	8.917	4.190	3.175	2.310
Media materials	2.550	3.576	2.830	1.732	0.514
Student support services	18.741	18.793	18.568	19.302	20.532
National database on Open Schooling	.050	--	--	--	--
National consortium of Open Schools	0.273	0.007	0.264	0.034	--
Human resource development: training, seminars and workshops	0.810	0.942	0.056	0.093	--
Research , evaluation, etc	0.244	0.040	0.106	--	--
Technical and professional support for developing Open Schooling	2.244	0.069	0.500	0.500	--
Library	0.583	0.236	0.136	0.168	0.163
Computer (ICT)	3.105	2.673	--	2.145	0.775
Advertisement and publicity	10.863	7.496	3.020	1.951	3.438
Buildings etc.	1.551	41.981	52.098	75.245	52.415
Vocational programmes	2.395	1.479	1.232	0.852	1.619
Total (B)	51.895	86.209	83.000	105.197	81.766
Government grant	53.300	90.000	54.000	36.000	40.500
Last year's unutilised balance	6.649	8.054	11.845	--	--
Total available for the year (A)	59.949	98.054	65.845	36.000	40.500
Surplus/deficit (A-B)	8.054	11.845	-17.155	- 69.197	- 41.266

²³² Based on various abstracts (of Accounts) very kindly arranged (August, 2007) by NIOS, New Delhi.

The above three tables (Tables 4.27, 4.28 and 4.29) provide no idea of the costs per student per year or those per subject per student. Of course, using the number of students enrolled every year calculations of the type of earlier studies can be presented, but the intention is to be as realistic and accurate as possible.

Table 4.30 is a reconstruction of the information presented in the above three tables. In this reconstruction:

- To avoid any possible confusion, no specific systems of numeration (i.e. millions etc for the Western readers or lakhs/crores etc for the Indian readers) are used. Instead, the actual figures are used, though they seem to be somewhat harsh to the eye.
- The approach to computation for each category of expenditure has been explained in the notes that follow Table 4.30.
- The year 2001-02 has been left out of the computation, as the period 2002-07 provides a wholesome five years covering the entire 10th Five Year Plan period.
- The letter (N) indicates that the item has been taken from the Non-plan Expenditure and the letter (P) that from the Plan Expenditure from the Tables 4.28 and 4.29 respectively.
- The logic of regrouping items (Plan and Non-plan) into different categories is explained in the notes that follow Table 4.30.
- The focus is on the expenditure, i.e. the costs.

Table 4.30 NIOS Expenditure for 2002-07: a reconstruction (INR)

C a t.	Expenditure head	2002-03	2003-04	2004-05	2005-06	2006-07
A	Establishment (N)	36,273,598	47,046,977	48,359,869	52,981,446	56,585,492
A	Office maintenance (N)	42,667,142	45,650,936	41,154,774	41,822,610	46,523,186
	Paper & printing (N)	151,866,852	175,927,511	100,525,822	112,457,784	140,652,075
	Student support services (P)	16,987,810	17,631,593	17,062,135	17,777,142	19,078,334
	Advertisement & publicity (P)	9,847,310	7,032,747	2,775,078	1,796,871	3,194,590
	National consortium (P)	247,476	6,567	242,590	31,314	--
	Computers etc. (P)	2,814,683	2,507,809	--	1,975,545	720,130
	Total [A]	260,704,871	295,804,140	210,120,268	228,842,712	266,753,807
B	Buildings etc (P)	28,138	787,731	957,457	1,386,013	974,080
B		28,138	28,138	28,138	28,138	28,138
			787,731	787,731	787,731	787,731
				957,457	957,457	957,457
					1,386,013	1,386,013
	Total [B]	28,138	815,869	1,773,326	3,159,339	4,133,419
C	Acad. programmes (P)	1,697,200	1,783,400	838,000	635,000	462,000
C	Media programmes (P)	433,500	607,920	481,100	294,440	87,380
	National database (P)	9,065	--	--	--	--
	Human resource development (P)	146,853	176,382	10,292	17,131	--
	Research etc. (P)	44,419	7,506	19,481	--	--
	Technical support (P)	--	12,947	91,890	92,100	--
	COL activities (N)	--	--	136,549	114,020	57,239
	Vehicles (N)	179,487	--	--	134,650	--
	<i>Total</i>	2,510,524	2,588,155	1,577,312	1,287,341	606,619
			2,510,524	2,510,524	2,510,524	2,510,524
				2,588,155	2,588,155	2,588,155
					1,577,312	1,577,312
						1,287,341
	Total [C]	2,510,524	5,098,679	6,675,991	7,963,332	8,569,951
D	Furniture etc. (N)	170,513	52,633	55,134	122,033	156,199
D	Library (P)	52,940	22,142	12,497	15,473	15,146
		223,453	74,775	67,631	137,506	171,345
			223,453	223,453	223,453	223,453
				74,775	74,775	74,775
					67,631	67,631
	Total [D]	223,453	298,228	365,859	503,365	674,710

E	Personal contact programmes (N)					
	Total [E]	56,743,750	80,438,500	59,517,250	66,756,500	72,745,750
CASE – I includes the expenditure on examinations in the computation.						
F	Examinations (N)					
	Total [F]	74,681,187	105,867,731	78,371,920	87,926,971	95,833,780
G	Grand total [A+B+C+D+E+F] = x	394,891,923	488,323,147	356,824,614	395,152,219	448,711,417
H	Number of students = y	226,975	321,754	238,069	267,026	290,983
I	Cost per student (to cover five subjects) = x/y	1739.80	1517.69	1498.83	1479.83	1542.05
J	Average cost per student (for 5 subjects computed over 5 years: 2002-07) = 1,549.59 or around INR 1550					
	Average cost per student (for 1 subject computed over 5 years: 2002-07) = INR 310					
K	Average cost per student (for 5 subjects computed over 4 years: 2002-06) = INR 1551.68					
CASE- II						
	In this case the expenditure on examinations has been excluded to compute the average costs per student (for 5 subjects over 5 years and over 4 years separately) in order to make comparisons across schools accurate and reliable.					
L	Grand total [A+B+C+D+E] = z	320,210,736	382,455,416	278,452,694	307,225,248	352,877,637
M	Number of students = y	226,975	321,754	238,069	267,026	290,983
N	Cost per student (to cover five subjects) = z/y	1410.77	1188.66	1169.63	1150.55	1212.71
O	Average cost per student (for 5 subjects computed over 5 years: 2002-07) = INR 1,226.46					
	Average cost per student (for 1 subject computed over 5 years: 2002-07) = INR 245.29					
P	Average cost per student (for 5 subjects computed over 4 years: 2002-06) = INR 1,229.90 or INR 1230					

Notes on Table 4.30

Category A: At NIOS, secondary and senior secondary students are registered for five years at one go. They pay according to the number of subjects they take (not less than five and not more than seven). They are given all the course materials at the time of registration. They are supported at the respective study centres for the first academic year of their registration. Subsequently they are on their own as they sit for examinations as and when they want within the set five years. This way the first phase of expenditure incurred by NIOS on its students pertains to the first year of their registration, when they receive the materials and tutorial support.

Here they are like year-based students in a conventional school and partake of expenses on the establishment, office maintenance, paper and printing (used for study materials for the year concerned), student support services (i.e. expenses on running Regional Centres), advertisements and publicity, national consortium of open learning and computers (Information and Communication Technology) on a yearly basis. The expenditure under these heads is, therefore, assigned to the very first year of a cohort's registration. But there are students on vocational (and earlier on foundation) courses too.

Since both categories provide similar services, to compute the expenditure assignable to secondary and senior secondary students, we have apportioned the expenses listed in Table 4.28 (NIOS-based abstract) appropriately using the respective apportioning factors of the relevant years from Table 4.27. For example, for the year 2002-03, the expenditure on establishment, INR 40,015,000 (see Table 4.28) is multiplied by the relevant apportioning factor, 0.9065 (see Table 4.27) for the secondary and senior secondary students and we get (INR 40,015,000 x 0.9065 =) INR 36,273,589, the entry under 2002-03 against *establishment*.

Category B: This pertains to buildings etc, items traditionally put under Plan Expenditure. The basic year to year figures have been culled from Table 4.29 and computed at two levels—first, the available amount has been divided using the relevant apportioning factor (as in the case of Category A) to compute the apportioned amount for the secondary and senior students; and then at the second level, this amount has been amortised over 50 years to be shared by the future students as well. For example, the expenditure incurred on buildings etc in 2002-03 was INR 1,552,000 (see Table 4.29). At the first level of computation—INR 1,552,000 x 0.9065 (the relevant apportioning factor) = INR 1,406,888; and at the second level of computation this amount is amortised over 50 years—INR 1,406,888/50 = INR 28,138, the entry under 2002-03 against Buildings etc. [Figures in italics in the table pertain to the computation of amortisation.]

Category C: The first item, academic programmes, in this category is the expenditure for developing study materials pertains exclusively to the secondary and senior secondary students. Once they are developed²³³ they remain in use for several (generally five) years. So the cost of developing materials has to be amortised. For example, the cost of developing academic programmes in 2002-03 was INR 8,486,000 (see Table 4.29). It is amortised over five years—INR 8,486,000 ÷ 5 = INR 1,697,200 per year, the entry under 2002-03 against academic programmes.

²³³ Development of materials is not to be confused with the *printing or production* of materials. We print/produce as much as we need for the year concerned; so the cost in this case is year based/related. The cost for developing study materials, however, falls into a different category of costs. The NIOS remuneration rates for developing study materials are as follows:

S. No.	Activity	Rates in INR
1	Writing self-instructional materials (up to 5000 words)	2000.00
2	Content editing of the original Unit	500.00
3	Language editing of a Unit	500.00
4	Translating the materials (up to 5000 words)	1000.00
5	Revision	500.00
6	Preparation of an assignment	150.00
7	Assessment of assignments (per assignment)	5.00
8	Proof reading: a) Normal; b) With mathematical work (up to 350 words in either case)	5.00 7.00
9	Preparation of items for a Question Bank (per item)	10.00
10	Typing per page	5.00
11	Computer work: a) Graphics; b) Scanning (per diagram in either case)	40.00 25.00
12	Word processing: a) Normal; b) With mathematical data (with a floppy in either case)	15.00 20.00

The second item, media programmes, is. the expenditure for developing media materials such as audio and video support for study materials. This pertains to academic (85 per cent of the cost)²³⁴ as well as vocational (15 per cent of the cost) courses. Such materials too remain in use for five years after they are developed. Accordingly, media support for academic (i.e. secondary and senior secondary) courses will cost 85 per cent of the expenditure on such materials and it has to be amortised over five years as in the case of Category A. For example, the cost of developing media programmes in 2002-03 was INR 2,550,000 (see Table 4.29); 85 per cent of which (i.e. INR 2,550,000 x 0.85 =) INR 2,167,500 relates to secondary and senior secondary courses. Further, it is amortised over five years—INR 2,167,500 ÷ 5 = INR 433,500 per year, the entry under 2002-03 against academic programmes.

The remaining six items in this category (i.e. national database etc, human resource development etc, research etc, technical support etc, COL activities and vehicles etc) are of relevance to all the students of NIOS and their utility and impact spills over a five year period (as per official regulations of NIOS) including the year in which the related costs are incurred. Accordingly, in their case the expenditure is first apportioned appropriately for the secondary and senior secondary students and then amortised over five years. For example, take the expenditure on human resource development in the year 2002-03 from Table 4.29, i.e. INR 810,000. The apportioned amount for the secondary and senior secondary students will be INR 810,000 x 0.9065 (the relevant apportioning factor) = INR 734,265. Amortising it over five years we get INR 734,265 ÷ 5 = INR 146,853, the entry under 2002-03 against human resource development. And so on. [Figures in italics in the table pertain to the computation of amortisation.]

Category D: In this category there are only two items, furniture etc. and library. The basis of computation here is the same as in the case of the third set of items in Category C, except that here the period of amortisation is longer, i.e. ten years (as per official regulations of NIOS). For example, take the 2002-03 expenditure on *library* from Table 4.29, i.e. INR 584,000. The apportioned amount for the secondary and senior secondary students will be INR 584,000 x 0.9065 (the relevant apportioning factor) = INR 529,396. Amortising it over ten years we get (INR 529,396/10 =) INR 52,940, the entry under 2002-03 against library. And so on. [Figures in italics in the table pertain to the computation of amortisation.]

Category E: In this category we have just one item, i.e. personal contact programmes. As explained earlier, NIOS pays to AIs at the rate of INR 250 per student (in the first year of one's registration) for providing academic support such as tutorials etc to the students. Accordingly, this expenditure is year-specific and is best computed by multiplying the number of students enrolled in a particular year by INR 250, the rate per student. For example, take the number of students (secondary and senior secondary put together) enrolled in 2002-03 from Table 4.27—i.e. 226,975. Multiplying it by 250 we get INR 56,743,750, the entry under 2002-03 against personal contact programmes.

Category F: This is the most complex of all the categories to work on, because:

- a student has the facility of nine different examinations to pass his/her five subjects,
- he/she is free to appear in any number of subjects at any of these examinations/chances,

²³⁴ As per information provided by NIOS, New Delhi.

- the way examination centres are paid for their services in terms of the various items of service and the number of students they serve is too complex to work on within the scope of this study, and
- it is not easy to disentangle accounts to track students' progression.

The saving grace, however, is that the examination accounts stand alone, as students pay for the subjects they sit for and do so as many times as they need to. To build a formula to compute expenditure on examinations, the following facts are used:

1. Each registered student would sit for and pass in five subjects necessarily to obtain certification.
2. NIOS spends at the most 65 per cent of the examination revenue on the actual conduct of examinations. (This is not an arbitrary figure. We worked through the examination revenue of 2004-05, 2005-06 and 2006-07 (see Table 4.28) and also the corresponding examinations related expenditure of these very years (see Table 4.28) and found that the respective actual expenditures were 64.04 per cent, 62.02 per cent and 53.36 per cent of the revenues of the corresponding years. Counting 65 per cent of the revenue from examination fees as the corresponding expenditure on conducting it is, therefore, a reasonable assumption.)
3. At the secondary level, 73 per cent of the subject registrations are in subjects without practicals and 27 per cent are in subjects with practicals, while at the senior secondary level the corresponding percentages are 70 per cent and 30 per cent respectively (see Table 4.34 and the related explanation).
4. Examination fee for subjects without practicals is INR 90 and for those with practicals is INR 130.

Derived from the above facts, four factors are used to compute what NIOS may spend on examinations for the cohort of a particular year. The factors are $(5) \times (0.73) \times (90) \times (0.65)$, $(5) \times (0.27) \times (130) \times (0.65)$, $(5) \times (0.70) \times (90) \times (0.65)$ and $(5) \times (0.30) \times (130) \times (0.65)$; the first two for the secondary level and the last two for the senior secondary level.

Take the 2006-07 cohort—160,791 registered for the secondary course and 130,192 for the senior secondary course (see Table 4.27). All the 160,791 secondary students will sit for five subjects each, i.e. 803,955 subjects in all; 73 per cent (i.e. 0.73) of these subjects are without practicals, so NIOS will collect 90 as examination fee for each one of them, but will spend only 65 per cent (i.e. 0.65) of the collected amount on the conduct of examinations. Thus NIOS will spend $160,791 \times 5 \times 0.73 \times 90 \times 0.65 = \text{INR } 34,332,898.28$ on the conduct of examinations in non-practical subjects. And $160,791 \times 5 \times 0.27 \times 130 \times 0.65 = \text{INR } 18,342,233.33$ on the conduct of examinations in subjects with practicals. Thus, overall NIOS will spend 52,675,132 on examinations for the 160,791 secondary students of 2006-07 irrespective of *when* they sit for their respective subjects. Again, using the senior secondary-specific factor, the expenditure for the senior secondary students of 2006-07 comes to 43,158,648, bringing the total expenditure for the entire secondary cohort of 2006-07 to 95,833,780, the entry under 2006-07 against examinations.

Case-I: Computation in Rows G, H (see also Table 4.27), I, J and K is straightforward. Row I provides the year-wise cost per student for him/her to complete five subjects for certification, while Row J presents the average cost (computed over five years) per

student per course = INR 1,550.00, (i.e. INR 310 per subject), and Row K presents the average cost (computed over four years) per student per course = INR 1,551.68.

Case-II excludes the expenditure on examinations from the computation. Computation in Rows L, M (see also Table 4.27), N, O, and P also is straightforward. Row N provides the year-wise cost per student for him/her to study five subjects for certification, while Row O presents the average cost (computed over five years) per student per course = INR 1,226.46, (i.e. INR 310 per subject), and Row P presents the average cost (computed over four years) per student per course = INR 1,230.

4.5.8 Costs compared to two conventional day schooling systems

Kendriya Vidyalayas (KVs): Table 4.31 presents the details of the actual expenditure of KVs over the first four years of the 10th Five Year Plan. Here all the yearly costs are specific to the year concerned, except those for buildings, which have been amortised over 50 years (see Table 4.31 below). Here the computation is on FTE basis mainly. One flaw in this computation is that it does not recognise any difference between the costs incurred on the students studying at different levels—class I to class XII. It offers the cost per student per year in general and not specifically that for the secondary or the senior secondary student. The best one may say is that the average secondary level student will certainly cost more than what the computation shows here, for the simple reason that higher level students need teachers with higher qualifications and, therefore, higher wages.

Table 4.31 Expenditure at the Kendriya Vidyalayas—2002-06²³⁵ (INR millions)

Heads	2002-03	2003-04	2004-05	2005-06	2006-07 (Estimates)
Salaries (<i>INR in millions</i>)	4,670.500	5,145.000	5,367.500	5,666.200	5,668.200
Retirement benefits (<i>INR in millions</i>)	652.000	697.800	762.600	828.900	882.000
Maintenance etc (<i>INR in millions</i>)	98.900	90.500	75.300	87.600	80.000
Misc. expenses (<i>INR in millions</i>)	181.700	221.800	148.100	83.400	210.500
Total [A] (<i>INR in millions</i>)	5,603.100	6,155.100	6,353.500	6,666.100	6,840.700
Construction etc (<i>INR in millions</i>) (amortised over 50 years)	875.500	989.800	886.000	1,736.100	2,350.000
	<i>17.510</i>	<i>17.510</i>	<i>17.510</i>	<i>17.510</i>	<i>17.510</i>
		<i>19.796</i>	<i>19.796</i>	<i>19.796</i>	<i>19.796</i>
			<i>17.720</i>	<i>17.720</i>	<i>17.720</i>
				<i>34.722</i>	<i>34.722</i>
					<i>47.000</i>
Total [B] (<i>INR in millions</i>)	17.510	37.306	55.026	89.748	136.748
Grand total (<i>INR in millions</i>) [A + B]	5,620.610	6,192.406	6,408.526	6,755.848	6,977.448
Number of students (Number of schools)	726,210 (843)	787,251 (902)	842,281 (933)	911,933 (931)	--
Cost per student per year (<i>INR</i>)	7,739.65	7,865.86	7,608.54	7,408.27	
Cost per student per course (<i>INR</i>)*	15,479.30	15,731.72	15,217.08	14,816.54	
Average cost per student per course (computed over 4 years 2002-06, as the actual expenditure for 2006-07 was not available at the time of computation) INR 15,287.50					
* As the secondary as well as the senior secondary students need two years to complete a course, the cost per student per course = approximately two times the cost per student per year.					

[Figures in italics in the above table pertain to the computation of amortisation.]

Emmanuel Mission Secondary School (EMSS): In addition to the data from KVs, which are supported by the Central Government, data was collected from Emmanuel Mission Secondary School (EMSS), Bhilwara in Rajasthan, which is not among the richer States of the country. And Bhilwara is a small town relatively. Affiliated with the Board of Secondary Education, Rajasthan, EMSS caters to the typical middle class population of the society and builds its revenue on the fees collected from students. It does not receive any support whatsoever from the government. It runs classes from Nursery up to Class X using English and Hindi as the routine media of instruction. In the academic year 2006-07, EMSS had 786 students on its rolls, of whom 158 were in classes IX and X put together. It charges an annual fee of INR 5000 per student at the Nursery level and INR 5700 at the secondary level, and maintains a sound teacher-student ratio for quality services. For example, the 158 students at the secondary level were divided into six sections (the largest sections had 29 students each and the smallest 21). EMSS has an enviable record of posting 100 per cent throughput year after year for over a decade now. Thus, in terms of the pass percentage of its students at the Board Examinations, its performance is better than that of KVs. Using the available data (pertaining to the academic year 2006-07), course costs per student are worked out as follows:

²³⁵ Kendriya Vidyalaya Sangathan—Budget: <http://kvsangathan.nic.in/budget.htm> (accessed on July 30, 2007).

Table 4.32 Cost per student: Emmanuel Mission Secondary School, Bhilwara, Rajasthan²³⁶ (INR)

		INR
Annual (2006-07) expenditure on Hindi Medium students	607,500.00	
Annual (2006-07) expenditure on English Medium students	501,376.00	
Annual (2006-07) rent for the school building	1,200,000.00	
Total expenditure	2,308,876.00	
Total no. of students	786	
Expenditure per student per year	$2,308,876 \div 786 =$ 2,937.50	
Expenditure on all the Secondary level students (158) in 2006-07	$2,937.50 \times 158 = 464,125$ (a)	
As six sections at the secondary level would need eight teachers with better qualifications/experience to guide the students, an additional salary of INR 4,500.00 per month per teacher is added to the expenditure. Thus, the annual additional expenditure on tuition for the secondary level students in 2006-07	$4,500 \times 8 \times 12 = 432,000$ (b)	
Total expenditure on 158 secondary level students in 2006-07	(a) + (b) = $464,125 + 432,000 =$ 896,125.	
The cost per secondary level student per year in 2006-07	$896,125 \div 158 = 5,671.68$	
As in the day school system, students need two years to complete the secondary course, the cost per student per course	$5,671.68 \times 2 =$ 11,343.36	

To relate the findings from the above table with those from Table 4.30, presented below is Table 4.33, which details the course-wise comparison and also the relative cost-efficiency of the three institutions.

Table 4.33 Comparative costs per secondary student per course: NIOS, KVs and EMSS (INR)

Institutions	2002-03	2003-04	2004-05	2005-06	2006-07	(average over four years: 2002-06)
NIOS: Cost/student/course	1410.77	1188.66	1169.63	1150.55	1212.71	1229.90
KVs: Cost/student/course	15,479.30	15,731.72	15,217.08	14,816.54	--	15,287.50
EMSS: Cost/student/course	--	--	--	--	11,343.36	
Relative cost-efficiency	1: 10.97	1: 13.24	1: 13.01	1: 12.88	1: 9.35	1: 12.43

²³⁶ Details collected from Padam Nath Khar, Advisor, Emmanuel Mission Secondary School, Bhilwara, Rajasthan, during a planned visit to the school in September, 2007.

Observations

- Given the special purpose as well as financial arrangements for JNVs, any cost comparison involving JNVs (see Table 4.26) does not make any sense here.
- An interesting comparison to note is that between the cost per student per year (INR 1973) as computed in the 2005-06 NIOS Study (see Table 4.26) and that reached in this study, i.e. INR 1230 (per course), the difference is not much, a mere INR 743. However, the fact to note is that INR 743 is nearly three-quarters of the course fee (i.e. fees for five subjects put together) at NIOS, and depending on the category of the student concerned, it is even more than the full course fee INR 550 (for SC/ST students). Obviously, it is a significant sum in the context of private costs of education at NIOS.
- According to the NIOS Study of 2005-06, the cost per student per year at KVs was over six times (actually 12 times in terms of cost per course) that at NIOS (see Table 4.26).
- In 1983-85 the cost per student per year at the KVs and Delhi Administration Schools was nearly two times of that at the Open School (see Table 4.24). Computing the figures for the costs per student per course (i.e. two years in the case of KVs and Delhi Administration Schools), KVs and Delhi Administration Schools are nearly four times costlier than the Open School.
- At present (2005-07), the cost per secondary student per course at KVs and EMSS is more than 12 and 9 times respectively of that at NIOS (see Table 4.33).
- In 1983-85, the cost per secondary student per course at the KVs was INR 1026 x 2 = INR 2052 (see Table 4.24); in 2002-06 it was INR 15,288 (see Table 4.33). The rise in the cost per secondary student per course at KVs over a period of about 20 years (as a ratio) is $15,288 \div 2052 = 7.45$, i.e. nearly $7\frac{1}{2}$ times.
- In 1983-85, the cost per secondary student per course at the Open School was INR 527 (see Table 4.24); in 2002-06 at NIOS it was INR 1,230 (see Table 4.33). The rise in the cost per secondary student per course at NIOS over a period of about 20 years (as a ratio) is $1,230 \div 527 = 2.33$, i.e. nearly $2\frac{1}{3}$ times.
- From (vi) and (vii) above, the relative (NIOS : KVs) rise in the cost per secondary student per course over a period of 20 years is $7.45 \div 2.33 = 3.20$. In relative terms, the conventional mode of schooling (KVs and similar other schools) has become more than 3 times costlier than the ODL system over the past two decades. In other words, as the costs rise universally with the passage of time, the conventional system of schooling turns to be more and more costly than the ODL system. This finding should interest both the educationists and the educational planners, especially in India, where the available levels of funding are not even remotely adequate for the purpose.

4.5.9 Private cost of education at NIOS

A brief analysis of the registrations in three consecutive years (2004-05, 2005-06 and 2006-07) should help determine out students' private costs for education at NIOS and also ascertain the trends in preferred subject loadings²³⁷. Table 4.34 below shows the subject-wise enrolment vis-à-vis the head count of enrolees.

²³⁷ Number of subjects actually taken by NIOS students at the secondary and senior secondary levels.

Table 4.34Enrolment by subject²³⁸ 2004-07 (an abstract)

Academic year	Secondary level				Senior secondary level			
	# enrolled (head count)	Subject enrolments		Average no. of subjects taken by a student	# enrolled (head count)	Subject enrolments		Average no. of subjects taken by a student
		Without practicals	With practicals			Without practicals	With practicals	
2006-07	160,791	624,172 (73.27 per cent)	227,756 (26.73 per cent)	5.30 subjects	130,192	486,447 (69.76 per cent)	210,887 (30.24 per cent)	5.36 subjects
2005-06	151,833	596,758 (73.10 per cent)	219,585 (26.90 per cent)	5.39 subjects	115,193	434,535 (69.95 per cent)	186,603 (30.05 per cent)	5.39 subjects
2004-05	140,501	553,608 (73.12 per cent)	203,494 (26.88 per cent)	5.39 subjects	97,568	378,698 (71.07 per cent)	154,144 (28.93 per cent)	5.46 subjects
Totals & averages	453,125	1774,538 (73.17 per cent)	650,835 (26.83 per cent)	5.36 subjects	342,953	1,299,680 (70.20 per cent)	551,634 (29.80 per cent)	5.39 subjects

It may be noted that at either level (secondary or senior secondary) and uniformly across the years, on average each student takes more than 5, but less than 5½ subjects. The overall average number of the subjects²³⁹ taken by each student during 2004-2007 comes to 5.37, while the averages for the secondary and senior secondary are 5.36 and 5.39 subjects respectively. This figure is important as it has implications for the private cost of education at NIOS. Obviously, at the time of registration, NIOS students do not register for as many as seven (the permitted number of) subjects. Among the various possible reasons for this situation, affordability could be a major issue, as most registrants do not seem to take advantage of the available facility of trying two additional subjects.

The issue of affordability is being addressed by NIOS in their differential fee structure for different categories of students. The objective of this approach is to address the vexing question of equity in educational dispensation, especially with respect to women and deprived sections of the society, supposedly the major target groups for NIOS.

NIOS charges different fees for different categories of students. The institution operates three variations of fee per subject (for general category male students, general category female students

²³⁸ National Institute of Open Schooling—Subject-wise enrolment: <http://www.nois.ac.in/subenrl.htm> (accessed on July 30, 2007)

²³⁹ **Subjects available at NIOS at the secondary level:** *Languages subjects*— Assamese, Bengali, English, Gujarati, Hindi, Kanada, Malayalam, Nepali, Oriya, Punjabi, Sanskrit, Telugu and Urdu. *Other subjects*— Mathematics, Science & Technology*, Social Sciences, Economics, Business Studies, Home Science*, Typewriting*, Word Processing*, Psychology and Indian Culture & Heritage. **Subjects available at NIOS at the senior secondary level:** *Language subjects*—English, Hindi and Urdu. *Other subjects*— Accountancy, Biology*, Business Studies, Chemistry*, Computer Science*, Economics, Geography*, History, Home Science*, Mathematics, Painting*, Physics*, Political Science, Psychology, Secretarial Practice*, Sociology, Stenography*, Typewriting and Word Processing*.

[* Subjects with practicals]

and for those given concessions), and two variations of examination fee—one for subjects without practicals and the other for those with practicals. Additional subjects are costlier at both the levels. Altogether, there are 12 categories of subject-related fees being charged at present, obviously to promote equity and provide support to the deprived sections of the society (see Table 4.35 below).

Table 4.35 Private cost per student per subject including examination costs (NIOS secondary level)

Student category	Equity issue addressed	Subject types	Private cost to a student at the secondary level (all the amounts are in INR)			
			Fee/subject (INR)	Additional * fraction/subject	Examination fee/subject	Total cost per subject
General	Men	Subjects without practicals	200	150 x 0.072 = 10.80	90	300.80 (A)
		Subjects with practicals	200	150 x 0.072 = 10.80	130	340.80 (B)
	Women	Subjects without practicals	150	150 x 0.072 = 10.80	90	250.80 (C)
		Subjects with practicals	150	150 x 0.072 = 10.80	130	290.80 (D)
Categories that get concessions	SCs/STs, Ex-servicemen, and the Differently able ones	Subjects without practicals	110	150 x 0.072 = 10.80	90	210.80 (E)
		Subjects with practicals	110	150 x 0.072 = 10.80	130	250.80 (F)

* The fee for an additional subject at this level is INR 150 and the additional average fraction (.36) registered for is distributed over five subjects— $0.36/5 = 0.072$.

**Table 4.36 Private cost per student per subject including examination costs
(NIOS senior secondary level)**

Student category	Equity issue addressed	Subject types	Private cost to a student at the Senior Secondary level (all the amounts are in INR)			
			Fee/subject (INR)	Additional* fraction/subject	Examination fee/subject	Total cost per subject
General	Men	Subjects without practicals	230	180 x 0.078 = 14.04	90	334.04 (G)
		Subjects with practicals	230	180 x 0.078 = 14.04	130	374.04 (H)
	Women	Subjects without practicals	180	180 x 0.078 = 14.04	90	284.04 (I)
		Subjects with practicals	180	180 x 0.078 = 14.04	130	324.04 (J)
Categories who get concessions	SCs/STs, Ex-servicemen, and the Differently able ones	Subjects without practicals	125	180 x 0.078 = 14.04	90	229.04 (K)
		Subjects with practicals	125	180 x 0.078 = 14.04	130	269.04 (L)

* The fee for an additional subject at this level is INR 180 and the additional average fraction (.39) registered for is distributed over five subjects— $0.39/5 = 0.078$.

The interesting finding is that on average, NIOS spends (see Table 4.30, Case-I, for the average cost per student per subject including examinations, i.e. INR 310.00) less per student per subject than it charges in the case of four of its fee categories (i.e. categories B, G, H and J—see Tables 4.35 and 4.36 above). It is only in the case of two categories (i.e. E and K) that fee charged per subject is visibly lower than what is spent on a student per subject. In the remaining six categories (A, C, D, F, I and L) the differences are not impressive.

Excluding the examination fees, the maximum and the minimum course fees for a secondary student at NIOS are INR $(210.80 \times 5) =$ INR 1054 and INR $(120.80 \times 5) =$ INR 604 respectively. Similarly, the maximum and the minimum course fees for a senior secondary student are INR $(244.04 \times 5) =$ INR 1220 and INR $(139.04 \times 5) =$ INR 695 respectively.

Secondly, considering the fee structure of Kendriya Vidyalayas (see Table 4.9), a secondary student pays a minimum/maximum of INR $(40+20+160) =$ INR 220 per month (i.e. INR 220 x 24 months = INR 5,280 for a course) and a senior secondary student may pay a minimum of INR $(50+20+160) =$ INR 230 (i.e. INR 230 x 24 months = 5,520 for a course, or a maximum of INR $(50+20+40+200) =$ INR 310 per month (i.e. INR 310 x 24 months = INR 7,440 for a course).

Thirdly, a secondary student at Emmanuel Mission Secondary School (EMSS), Bhilwara, Rajasthan (see the details following Table 4.31), pays a course fee of INR $5700 \times 2 =$ INR 11400,

payable in installments over two years, while cost per student per course is INR 11,343.36 (see Table 4.32).

Putting the three cases together, Table 4.37 presents a profile of the private costs at the three institutions.

Table 4.37 Private cost per student per course (excluding examination costs): NIOS, KVs and EMSS compared

S. N.	Institution	Overall average cost per student per course (INR)	Secondary level		Senior Secondary level	
			Minimum Private Cost (INR)	Maximum Private Cost (INR)	Minimum Private Cost (INR)	Maximum Private Cost (INR)
1	NIOS	1229.90	604 (49.11 per cent)	1054 (85.70 per cent)	695 (56.51 per cent)	1220 (99.20 per cent)
2	KVs	15,287.50	5,280 (34.54 per cent)	5,280 (34.54 per cent)	5,520 (36.11 per cent)	7,440 (48.67 per cent)
3	EMSS	11,343.36	11,400 (100.50 per cent)	11,400 (100.50 per cent)	--	--

The best case at NIOS is of the student who pays nearly 50 per cent of the cost of his/her studies; the worst is of the student who has to pay more than 99 per cent of the actual cost. At KVs, the best case is of the student who pays slightly more than one-third of the actual cost and the worst is that of the one who has to pay nearly one-half of the actual cost. In the case of EMSS, a student pays actually what is spent on him/her. EMSS is a non-profit institution run by missionaries in a relatively small town for the middle class of the society. It does not offer any high-end facilities, but makes sure that there is no wastage. With 100 per cent results for over a decade now, its performance and so its cost-effectiveness is better than that of KVs. The cost per secondary student per course at EMSS should, therefore, serve as a reliable and valid measure/norm for the costs (being investigated) wherever they are computed in the country. With this in view, one can see that with better conventional facilities available at KVs, its students enjoy subsidies ranging from 51 per cent to 65 per cent depending on whether they are at the secondary or the senior secondary level and what subjects they may have chosen for their studies. Also, with radically different facilities available at NIOS, its students enjoy subsidies ranging from 1 per cent to 51 per cent on a similar basis.

4.5.10 Conclusions on costs

The overall conclusion is that at the secondary level of education in India, ODL operations are patently much cheaper (in the ratio of 1: 9+ to 12+) than the conventional schooling systems and more importantly, that such operations become progressively cheaper and still more cheaper (in relative terms) with the passage of time.

Is there more to ODL than cost-effectiveness and cost-efficiency?

Living in abject poverty, Shailendra Kumar Verma, of illiterate parents, passed his senior secondary examination as a student of NIOS, when he was eleven years old. Before joining NIOS, he had never attended any formal schooling system. After he passed the NIOS Senior Secondary Examination, he joined Lucknow University and obtained his first university degree (Bachelor of Computer Applications) in first division this year. Now 14 years old, he has joined the Master in Computer Applications Programme of IGNOU at its Lucknow study centre. He is said to be the youngest student of the University and will not be charged any fees (INR 40,000 for this programme).

Abstracted from a news item:

Daily Excelsior, Jammu, India—Monday, October 1, 2007. p. 7.

5 ECONOMY AND EDUCATION IN NAMIBIA

5.1 Introduction

The Republic of Namibia occupies an area of some 824,300 square kilometres and has a population of approximately two million made up of 13 ethnic cultures and 16 language groups. Although Gross National Product (GNP) is relatively high at US \$7,418 per capita²⁴⁰ and Gross National Income per capita is of the order of US \$2,990²⁴¹, these average figures mask inequalities in income that are among the highest in the world. Still, Namibia is far from being among the poorest of the world's countries: it has significant mineral deposits (diamonds, uranium, copper, zinc, lead, tin, silver and tungsten, as well as semi-precious stones) that make mining a mainstay of the economy. Fishery is also important, and there is potential to develop some agricultural products (e.g. grapes), as well as the port facilities at Walvis Bay. However, the potential for development is held back by a low skills base that hampers foreign investment²⁴².

It is against this background that the education sector has over the past three years developed a strategic plan, the Education and Training Sector Improvement Programme (ETSIP)²⁴³. It is premised on the belief that a “weak education and training system cannot facilitate the attainment of complex and ambitious development goals” and that the immediate need is to “focus on *strengthening of the immediate supply of middle to high level skilled labour to meet market demands and support overall national development goals*” [italics in original]²⁴⁴. ETSIP draws attention to the importance of secondary education in developing and reinforcing the capacity for “continuous learning and flexible skill training” and “the evidence to suggest that export-led growth is associated with investments at post-primary level”,²⁴⁵.

5.2 Demographic factors

The US Census Bureau's International Data Base estimates (as at 24 August 2006) indicate that the mid-year population of Namibia in 2006 was just over two million (2.061 m), of whom 1.064m were male and 0.997m female. In 2005, there were 25 births per 1,000 population, and 18 deaths per 1,000. The population has a natural rate of increase of 0.7 per cent per annum – the same as the annual rate of increase. Current life expectancy at birth is 43.9 years. The total fertility rate (per woman) is 3.2 – though projections for 2025 suggest that this will fall to 1.8 at which point deaths per 1,000 will exceed births per 1,000, leading to a natural rate of population increase of –0.3 per cent²⁴⁶.

²⁴⁰ UNDP, Human Development Report 2006.

http://hdr.undp.org/hdr2006/statistics/countries/data_sheets/cty_ds_NAM.html, accessed 19 April 2007. GDP here is based on GDP PPP (purchasing power parity) – a method that takes account of both national income and national prices.

²⁴¹ World Bank Key Development Data and Statistics, accessed 19 April 2007:

<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20535285~menuPK:1192694~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>

²⁴² Mmantsetsa Toka Marope, *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*, Africa Region Human Development Working paper Series No. 84, Human Development Sector, Africa Region, The World Bank, 2005, §2.17, p. 12.

²⁴³ Republic of Namibia, *Education and Training Sector Improvement Programme (ETSIP), Planning for a Learning Nation: Programme Document Phase I (2006-2011)*, February 2007.

²⁴⁴ Ibid. p. 2.

²⁴⁵ Ibid. p. 18.

²⁴⁶ US Census Bureau, International Data Base, Mid-2006 population estimates for Namibia, released 28 August 2006: <http://www.census.gov/cgi-bin/ipc/idbsum.pl?cty=WA>, accessed 19 April 2007.

The mid-year population estimate for 2005 by age and sex is shown in Table 5.1 below, while Chart 4.1 shows the population pyramid. The Population Dependency Ratio (number of the population aged under 15 or over 64, relative to the number in the working ages of 15 to 64) is high at 74.1 per cent. The under 15 Dependency Ratio is 67.1 (see Table 5.2). Chart 5.1 graphically shows the bulge in the school-aged population (Grades 1 to 12, aged 7 to 18 years).

Table 5.1: 2005 Mid-year population estimate by age and sex ('000s), Namibia

	Total	Male	Female
Total population	2,031	1017	1014
Age 0-4	258	130	128
5-9	270	136	134
10-14	258	130	128
15-19	240	121	119
20-24	217	110	106
25-29	171	89	82
30-34	130	68	63
35-39	100	50	50
40-44	87	42	45
45-49	74	35	39
50-54	62	29	33
55-59	51	24	27
60-64	40	19	21
65-69	30	14	16
70-74	21	10	11
75-79	12	6	7
80+	10	4	6

Source: U.S. Census Bureau, International Data Base, August 2006 version.

Table 5.2: Population Dependency Ratio, 2006

	Population ('000s)	%
Total population	2,031	1.000
Population under 15	786	0.387
Working age population aged 15-64	1,172	0.577
Population over 64	83	0.041
Dependency Ratio under 15 and 65+	0.741	
Dependency Ratio (youth only)	0.671	

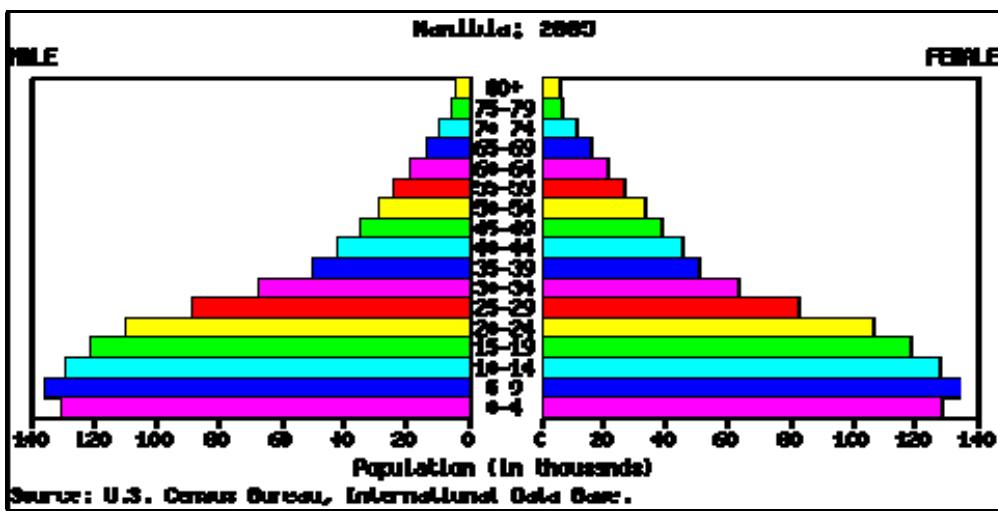


Chart 5.1: Population of Namibia, mid-2005 estimates, by age and sex

The raw population figures need to be placed in context. Some understanding of socio-economic conditions in Namibia can be obtained from the recently published (November 2006) 2003/2004 *Namibia Household Income and Expenditure Survey*²⁴⁷. The survey is based on information obtained from 10,907 private households (i.e. excluding institutions such as prisons, hostels, police barracks and hospitals) with an 89.9 per cent response rate. At the time of the survey, there were an estimated 371,678 private households with an estimated household population of 1,830,000.

Most of the population (65 per cent) and households (60 per cent) were in rural areas. Sixty per cent of the population and 52 per cent of households are in the Northern Region (Caprivi, Kavango, Ohangwena, Omusati, Oshana and Oshikoto). The average household size was 4.9 persons with rural households being on average larger (5.4 persons) than urban households (4.2 persons). Of the population, more than half (51 per cent) are under the age of 20, with the population in rural areas being generally younger than the population in urban areas – in rural areas 56 per cent of the population is under 20 years of age. Across the population as a whole there are more females than males (91 males for every 100 females), but in urban areas there are considerably more males than females in the age range 45-59 years, reflecting the impact of migration in search of work.

Nearly 52 per cent of the population speaks Oshiwambo as the main language of communication within the household, with Rukavango spoken by 11.8 per cent of the population and Nama/Damara by 10.5 per cent. English is the main language of communication for just 1.3 per cent of the population and Afrikaans for 8.2 per cent²⁴⁸.

²⁴⁷ Republic of Namibia: Central Bureau of Statistics, National Planning Commission, 2003/2004 *Namibia Household Income and Expenditure Survey: Main Report*, Windhoek, November 2006.

²⁴⁸ Ibid. pp. 15-23.

5.2.1 Education levels

The survey looked at the level of education in households. Households were asked to report on ability to read and write, school attendance and highest level of educational attainment for all persons aged six years and above. Literacy levels are based on those who answered “Yes” to the question if they could read and write in any language. On this basis, 83 per cent of the population aged 15 and above is literate (this rises to 93 per cent for 15-24 year olds). At the national level, there is little difference between males and females, but there are large differences at the regional level.

School attendance is compulsory between the ages of 6 and 13. Eighty-five per cent of all persons aged six and above said they had attended some kind of formal schooling; 15 per cent said they had never attended school. This was also true for 10 per cent of those aged between 6 and 16 (7 per cent of urban children, 12 per cent of rural children). Nearly one in four (25 per cent) of those aged 17 and above and living in rural areas said they had *never* been to school. Among the population aged 17 years and above, the survey suggested that 16.7 per cent have no formal schooling, while 31.7 per cent have primary schooling as their highest level of educational attainment, 45.5 per cent have secondary schooling and 5.9 per cent have tertiary education.

Almost half (48 per cent) of females have attained secondary education compared with 43 per cent of males – a finding supported by Gross and Net Enrolment Rates data. The Gross Enrolment Rate (GER) measures the total enrolment in a range of grades divided by the number of people in the population of an age that should be enrolled in those grades. GER values over 100 per cent indicate the presence of over-age learners enrolled in a specific school phase. The Net Enrolment Rate (NER) is the number of learners of an appropriate age enrolled in range of grades, divided by the number of people in the population of the same age group. There is a correlation between age and no formal educational attainment – just 5 per cent of those aged 15-19 fell into this category, compared to 57 per cent of those aged over 65 years²⁴⁹.

5.2.2 Sources of income

Households generally have more than one source of income, but in 46 per cent of Namibian households, the main source of income was derived from salaries and wages (77 per cent in urban areas, 26 per cent in rural areas), followed by business income (11 per cent). Forty-eight per cent of rural households reported subsistence farming as their main source of income. A high proportion of those who reported that subsistence farming was their main source of income had no formal education (42.3 per cent) or just primary education (40 per cent). Conversely, 60.4 per cent of those who reported wages and salaries to be their main source of income had secondary education, and 81.3 per cent had tertiary education.

Of English, Afrikaans and Nama/Damara first-choice language speakers, 77.2, 72.6 and 71.2 per cent respectively reported that wages/salaries were their main source of income. Of Oshiwambo speakers, 46.2 per cent cited subsistence farming as their main source of income, and 35.9 per cent cited wages/salaries as their main source of income²⁵⁰.

²⁴⁹ Ibid. pp. 25-32.

²⁵⁰ Ibid. pp. 33-38

5.2.3 Access to technology

The reliance of open and distance learning systems on technologies means that access to electricity is a major factor in facilitating study through technologies such as main-powered radios. The most reliable data here is the proportion of households that use electricity as their power source for lighting. Across Namibia as a whole, the 2003/2004 household survey indicated that 36.4 per cent of homes use electricity for lighting, but there are significant regional variations (Erongo, 77.8 per cent; Khomas, 71.9 per cent; Kavango, 15.6 per cent; Omusati, 7.3 per cent; Ohangwena, 4.8 per cent)²⁵¹.

On the other hand, 71 per cent of households indicated that they owned a radio, which suggests that a considerable number of radios are powered by battery or clockwork. Another 13 per cent of households had access to a radio. Access to radios is higher in urban areas (79 per cent) than it is in rural areas (66 per cent). Radio ownership is particularly high in Erongo (85.2 per cent), Karas (82.9 per cent) and Khomas (79.5 per cent); lack of any access to a radio is highest in Caprivi (26.4 per cent), Ohangwena (25.4 per cent), and Otjozondjuna (20.4 per cent).

Twenty-nine per cent of households reported ownership of televisions and 10 per cent had access to television sets. Urban households had a higher level of ownership (57 per cent) than rural households (10 per cent). Telephone and cell phone ownership was 33.5 per cent nationally, with another 33.3 per cent of households reporting access to such facilities. Again there are marked regional differences with 89.2 per cent of households in Ohangwena lacking access, compared with 9.1 per cent in Khomas²⁵². Although penetration of these technologies will increase, inequalities in absolute and disposable incomes will hinder the development of a mass market.

As Table 5.3 indicates, lack of access to technologies and particularly those technologies crucial to the use of ICTs in education, also affects schools:

Table 5.3: School access to electricity and telephones, 2005

Year	No electricity	Have electricity	%age with electricity	No phone	Have phone	% with phone
2002	903	681	43.0	946	638	40.3
2003	828	770	48.2	893	705	44.1
2004	787	814	51.0	842	759	47.0
2005	801	825	50.7	844	782	48.1
Source:	MOE Educational Management Information System, Educational Statistics 2002, 2003, 2004, 2005 (Table 57)					

5.2.4 Proximity to education

Distance students are often required to travel to tutorial centres and examination centres, so distance from public transport is a factor that needs to be taken into account. The 2003/2004 household survey indicated that 58 per cent of all households are less than 1 kilometre from public transport, and 21 per cent for 1 to 5 kms from such a source. Eight per cent of households are 21 kms and above from a source of public transport. Regions where a particularly high proportion of households are more than 21 kms from public transport include Harap (21.4 per

²⁵¹ Ibid. p. 51.

²⁵² Ibid. pp. 71-3.

cent), Karas (19.8 per cent), Kunene (20.8 per cent), and Omaheke (38.6 per cent)²⁵³. People who live some distance from a school may be attracted to distance education as a way of meeting their need, especially if the distance education system is home-based. However, any requirement to attend a tutorial centre based in a school may then become a barrier to their participation.

In Namibia, relatively few households are more than 21 kms from a primary school (7.9 per cent), while 73.9 per cent of households are within 3 kms of a primary school. Again, there are regional variations (in Omaheke 41.5 per cent of households are within 3 kms of a primary school, while in Khomas 86.7 per cent are). Urban households are far more likely to be within this distance (94.9 per cent) than rural households (59.7 per cent).

As one would expect, distance to a high school is greater. Only 41.1 per cent of Namibian households are within 3 kms of a high school (urban, 84.2 per cent; rural 11.6 per cent) or a combined school that offers both primary and secondary education (national figure 46.9 per cent, urban 58.9 per cent, rural 38.8 per cent)²⁵⁴. For this reason, it is quite usual to provide hostel accommodation for secondary school students. In 2004/2005, there were 194 hostels, with 59 serving the primary sector and 135 serving secondary and combined schools (i.e. comprehensive schools covering both primary and secondary age groups).

5.2.5 Hostel accommodations

Hostels accommodated 46,455 learners in 2004/2005, and 47,488 learners in 2005/2006²⁵⁵. Learners are resident 265 days a year. The provision of hostel places is a significant cost to the education service – especially at secondary level (one estimate suggests that some 90 per cent of hostel places are occupied by secondary school pupils). More than 9 per cent of the basic education budget is allocated to hostels. This represents two-fifths of what is spent on secondary education and slightly less than one-fifth of what is spent on primary education²⁵⁶. Table 5.4 shows the number of hostels by level, the total government spend on hostel accommodation and the unit cost per resident, in 2005-2006. The total spend in 2005/2006 was NA \$223.8 million.

Parental contributions towards boarding fees depend on the type of hostel a learner is occupying. There are four categories of hostels offering varying levels of service, and in 2005/2006 parental contributions theoretically ranged from NA \$198 to NA \$825 a year. However, many parents are partially or fully exempted from the fees, and the total amount of parental contribution in 2005/2006 amounted to just NA \$7.376m²⁵⁷ (see Table 5.5)

²⁵³ Ibid., p. 63.

²⁵⁴ Ibid. pp. 65-67.

²⁵⁵ MOE, Unit costs-hostels, Financial Year 2004/2005; 2005/2006.

²⁵⁶ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr T Kakonda, Planning Division, MOE, Windhoek, Section 3.

²⁵⁷ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr T Kakonda, Planning Division, MOE, Windhoek, Section 4; MOE, Unit costs-hostels, Financial Year 2005/2006.

Table 5.4: Primary and secondary education hostel accommodation and hostel costs, 2005-2006

Region	Total # of hostels	# primary hostels	# combined and secondary hostels	Total cost NA \$	Unit cost per learner per day NA \$
TOTAL	194	59	135	223,799,247	18.78
Caprivi	7	0	7	9,798,461	22.80
Hardap	17	7	10	18,283,213	30.90
Karas	19	6	13	13,711,873	22.05
Erlango	15	5	10	13,297,907	21.31
Kunene	21	7	14	19,553,221	15.75
Oshikoto	8	0	8	13,457,545	19.54
Ohangwena	5	0	5	8,178,390	13.27
Oshana	5	0	5	8,946,503	10.86
Omusati	12	0	12	13,703,685	9.25
Kavango	13	0	13	14,092,438	13.72
Khomas	18	6	12	26,826,833	33.84
Omaheke	20	13	7	19,236,446	15.29
Otjizondjupa	26	10	16	38,519,713	24.33
Special Education	8	5	2	6,203,018	25.54

Table 5.5: Parental contribution to hostel costs, 2005-2006

Total cost	Total Parental Contribution	Parental contribution as %age Total Cost	Average parental contribution per year	Average parental contribution per day (265 day school boarding year)
N\$223,799,247	N \$7,376,435	0.033	N \$155.33	N \$0.59

Source of raw data: Ministry of Education, *Financial Year 2005/2006 Item 22: Unit Costs – Hostels; MOE, Number of Primary and Secondary [including Combined] Hostels.*

5.2.6 Household income

The 2003/2004 Namibian Household Income and Expenditure Survey indicates that “Inequality of income in Namibia remains among the highest in the world”²⁵⁸. In the survey:

- Household consumption is defined as the sum of total expenditure on consumables such as food, beverages, clothing, furniture and electrical appliances, as well as imputed rent for free occupied or owner occupied dwellings.
- Expenditures are cash except for imputed rent (estimated value of rent for free occupied or owned dwelling units), which is treated as consumption in kind.
- Household income is defined as the sum of total consumption and non-consumption expenditures such as for livestock, motor vehicle license, fines, gifts, house and land.

²⁵⁸ Republic of Namibia: Central Bureau of Statistics, National Planning Commission, *2003/2004 Namibia Household Income and Expenditure Survey: Main Report*, Windhoek, November 2006, p. 95.

The report classified households into ten groups using adjusted per capita income (ACPI) to rank households from the lowest ACPI to the highest. Households were divided into 100 equal sized groups defined by ACPI. The first percentile includes the 1 per cent of households with the lowest ACPI; the second percentile the 1 per cent of households after excluding those in the first percentile having the lowest ACPI; the third percentile the 1 percent of households with the lowest ACPI after exclusion of the first and second percentile, and so on. The percentiles were then grouped:

- Group A comprised the 25 per cent of households with the lowest ACPI.
- Group B is the 25 per cent of households which have a higher ACPI than Group A.
- Group C is the 25 per cent of households with a higher ACPI than groups A and B.
- Group D is the 15 per cent of households with a higher ACPI than groups A to C.
- Group E is the 5 per cent of households having a higher ACPI than groups A to D.
- Group F is the 3 per cent of households having a higher ACPI than groups A to E.
- Group G is the two percent of households having a higher ACPI than groups A to F combined.

Turning to the characteristics of these groups:

- Group A comprises households in percentiles 1-25 with an average household size of 6.8 persons and consumption per capita in the households of NA \$1,676.
- Group B is percentiles 26-50 (average household size 5.4; per capita consumption NA \$3,396).
- Group C is percentiles 51-75 (average household size 4.2; per capita consumption NA \$6,921).
- Group D is percentiles 76-90 (average household size 3.6; per capita consumption NA \$16,922),
- Group E is percentiles 91-95 (average household size 3.1; per capita consumption NA \$40,771).
- Group F is percentiles 96-98 (average household size 2.6; per capita consumption NA \$69,131).
- Group F is percentiles 99-100 (average household size 2.3; per capita consumption NA \$140,870).

The extent to which consumption is skewed is shown by the fact that the bottom 25 per cent of households account for just 6.8 per cent of all consumption, and the bottom 50 per cent of households for just 17.6 per cent of all income. In contrast, the top 2 per cent of households account for 15.3 per cent of all consumption, and the top 5 per cent account for 28.4 per cent of all consumption. At the lower end of the scale, the bottom 10 per cent of households have a monthly per capita consumption of NA \$135, compared with a monthly per capita expenditure of NA \$49,854 in the richest 10 per cent of households.

The average household consumption was NA \$42,078 – giving an average per capita consumption of NA \$8,546. Large discrepancies exist between urban areas (NA \$15,400 per capita) and rural areas (NA \$4,900 per capita). Households in Khomas and Erongo regions account for a far larger proportion of the nation's total consumption than their numbers would suggest (Khomas, NA \$89,065 per household and NA \$22,367 per head; Erongo, NA \$52,675 per household and NA \$14,743 per head). In contrast, Ohangwena has the lowest consumption of NA \$21,685 per household and NA \$3,467 per head. The regional disparities are important because if

one maps population density, location of schools and poverty, one finds that most of the population and most schools are located in the north of the country, which is where poverty levels are highest.

In Namibia, 59 per cent of households are headed by males and 41 per cent by females – the head being the person of either sex whom members of that household regard as the leader or main decision maker. Female-headed households have a lower level of consumption – accounting for just 29 per cent of total consumption (overall the consumption per head in a female-headed household is NA \$6,132 compared with NA \$10,204 in male-headed households). German- and English-speaking households, which account for 1.8 per cent of the population, have the highest household consumption level at roughly NA \$193,500, and account for 13.5 per cent of total consumption. Afrikaans households (8.2 per cent of the population) have a household consumption level of NA \$93,156, and account for 23.5 per cent of all consumption. Oshiwambo-speaking households, which account for 51.9 per cent of the population, have an average consumption per household of NA \$31,188 and account for 36.2 per cent of total consumption.

There is a strong correlation between the highest level of education attainment by the head of the household and annual per capita consumption within the household (Table 5.6):

Table 5.6: Annual consumption by highest level of educational attainment of the head of the household

Educational Attainment of head	% all households	% of population	Average household size	% all consumption	Average household consumption NA \$	Consumption per capita NA \$
No formal Education	23.8	27.4	5.7	9.3	16 530	2 910
Primary	31.4	33.4	5.3	16.6	22 234	4 233
Secondary	34.2	30.0	4.3	38.6	47 584	10 993
Tertiary	9.9	8.4	4.2	34.9	147 477	35 329
Not stated	0.8	0.7	4.2	0.6	32 852	7 744
Total	100.0	100.0	4.9	100.0	42 078	8 546

Source: Republic of Namibia: Central Bureau of Statistics, National Planning Commission, *2003/2004 Namibia Household Income and Expenditure Survey: Main Report*, Windhoek, November 2006, Table 8.1.5, p. 101

The average annual income (derived from the sum of total consumption and non-consumption expenditures as defined above) is NA \$43,521 per household, and NA \$10,358 per individual. Again there are wide discrepancies by region, by sex of head of household, by language spoken within the household and by highest educational attainment of the head of the household. The lowest 25 per cent of all households have an average annual household income of NA \$11,545 (per capita, NA \$1,692, adjusted per capita NA \$2,040), compared with the richest 2 per cent (annual household income NA \$339,382, income per capita NA \$147,838, adjusted per capita income NA \$157,979). The 25 per cent of households with the lowest ACPI account for just 7 per cent of all income, while the 2 per cent of households with the highest ACPI account for 44 per cent of total annual income. Similarly the ten percent of households with the lowest adjusted income per capita account for just 2 per cent of total income in Namibia, while the richest decile of households account for 44 per cent of total income.

5.2.7 Spending on education

When the survey looks at what people spend their money on, the findings show that in the average Namibian household 24.3 per cent of the household's total annual consumption goes towards food and beverages, 21.3 per cent on housing, 16 per cent on travel and just 2.7 per cent on education. As far as expenditure on education is concerned, there are regional variations, with households in Erongo spending just 2.9 per cent of their total consumption on education, those in Khomas 3.2 per cent, those in Oshikoto 5.6 per cent, and those in Hardago 1.2 per cent. Urban households tend to spend more than rural households (2.9 per cent against 2.3 per cent). Among language groups German-speaking households spend more (2.8 per cent) than do English (1.9 per cent) and Afrikaans (1.9 per cent); Otiherero-speaking households spend 3.6 per cent, Oshiwando speakers 3.2 per cent, and Caprivi language group speakers 3.3 per cent. Those households where the head of the household has tertiary education spend more (3.7 per cent) than those with secondary education (2.1 per cent), primary (2.7 per cent) and no formal education (1.4 per cent), but of course those with tertiary education also earn more so they are spending a higher proportion of a bigger income on education.

Further evidence related to household expenditure on education comes from parental contributions to each school's School Development Fund. Each school is entitled to have a School Development Fund which must be approved by the school board. The board determines the level of fees to be charged per pupil but such contributions are legally strictly voluntary in that no learner can be excluded on grounds of non-payment. A parent must apply to the school board for full or partial exemption, whereas orphans are automatically exempted. This contribution should not exceed NA \$250 per learner for primary and NA \$500 for secondary learners. Although no learners can be exempted, they may self-exclude themselves from schools with higher School Development Funds or those requiring uniforms²⁵⁹.

²⁵⁹ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr T Kakonda, Planning Division, MOE, Windhoek, Section 4.

The 2004 Public Expenditure Tracking Survey showed that only 60 per cent of learners had paid their fees. Contributions to the School Development Fund vary across regions, reinforcing inequities (Table 5.7).

Table 5.7: Parental contributions towards school development funds (NAD), 2004 Public Expenditure Tracking Survey data

Region	Junior Primary	Senior Primary	Junior Secondary	Senior Secondary
Hardap	96.11	126.00	291.67	312.50
Kavango	19.16	31.73	61.67	75.00
Khomas	430.00	430.00	1,858.33	1,858.33
Kunene	39.44	41.11	55.00	
Omaheke	141.43	141.43	170.00	250.00
Omusati	13.57	21.29	37.70	
Oshana	14.60	32.11	950.00	950.00
Private	2,664.00	2,664.00	950.00	950.00
Rural	40.28	50.80	110.07	380.00
Urban	963.06	1,018.24	1,251.50	1,362.78
National Average	226.91	267.20	402.74	1,011.79

Source: Draft version Public Expenditure Tracking Survey, 2004, cited in Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr T Kakonda, Planning Division, MOE, Windhoek, Section 4.

Evidence for the generally low level of educational cost sharing by households comes from the draft Expenditures Issues Paper (2005) prepared within the Ministry of Education. This shows that

“...private financing of education expenditure forms a low percentage of total expenditure in basic education. At the primary level in 2004/05 it constituted approximately 8 per cent of the per learner cost incurred by government at that level while for secondary learners the contribution increases to 9 per cent. Private financing is limited to non-compulsory contributions to the school development fund [SDF], which according to the Education Act, 2001 may be used ‘to provide, develop and improve reasonable and necessary families at school; and to uplift and improve educational, sport and cultural activities at school.’ Private contributions may also be made towards extra tuition received by learners especially prevalent at the junior secondary and senior secondary phases where learners sit for school leaving examinations. This contribution, according to the sacmeq ii survey, has increased from 35 per cent of learners receiving extra tuition in at least one subject to 45 per cent although the exact nature of payment for tuition received is not clear.”²⁶⁰

²⁶⁰ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr T Kakonda, Planning Division, MOE, Windhoek, Section 2.

Moreover:

“...the draft report of the Public Expenditure Tracking Survey (PETS) for the education sector 2004 indicates that on average 40 per cent of learners do not contribute to the school development fund. This figure is likely to increase in the future with high HIV/Aids rates, causing an expanding number of orphans and an increase in health costs. Estimated numbers of children who have lost their mother or father or both parents to aids are estimated at 47,000 (or about two per cent) in 2001. SDF may be used to improve the quality of education by diverting funds to supplementary activities. However, PETS indicates that most schools are not fully utilizing their contributions even if pressing needs exist. This also causes an inter-generational discrepancy where learners who contribute to the SDF are not the ones who benefit from its use. Current training of school boards on general school governance and financial management and accountability is expected to have positive effect on the utilisation of the SDF.”²⁶¹

Overall, four per cent of all households are classified as severely poor (i.e. 80 per cent or more of all household income spent on food), and 28 per cent are poor and severely poor (i.e. 60 per cent or more of all household income spent on food). Poverty is in general a rural phenomenon (the proportion of poor and severely poor households is 42 per cent in rural areas and seven per cent in urban areas), and the highest shares of poor and severely poor households occur in Kavango (50 per cent of all households), Oshikoto (47 per cent), Omusati (47 per cent) and Caprivi (44 per cent). In Khomas, four per cent of households are classified as poor or severely poor²⁶².

5.3 Structure of the Namibian Education System

The general education system in Namibia follows a 4-3-3-2 system comprising lower primary, upper primary, junior secondary and senior secondary schooling. In addition, a relatively small number of children benefit from pre-primary provision, which may be limited to childminding, a ten-week long school readiness programme or provision through nursery schools (where the level of parental contribution required limits takers to more affluent families) or through opportunities provided to workers as part of their employment benefits.

The recent draft Expenditures Issues Paper (2005)²⁶³ points out that since independence in 2000:

“...education has enjoyed budget priority with far over 20 per cent of government resources and over 7 per cent of GDP going towards the sector. While the sector has made significant progress in expanding access to education, several challenges remain. First among these are that resources are still inequitably distributed, with negative impact on lower income groups and rural populations, and many school leavers have not obtained levels of literacy and numeracy commensurate with their years of schooling. ...Over the past few years resource allocations to the sector has decreased, both in terms of spending as a share of government resources and as a share of GDP. More critically, available funds have decreased in real terms, requiring the sector to make deliberate efficiency gains in key cost drivers in order to protect spending in areas that are more

²⁶¹ Ibid, Section 2.

²⁶² Republic of Namibia: Central Bureau of Statistics, National Planning Commission, 2003/2004 *Namibia Household Income and Expenditure Survey: Main Report*, Windhoek, November 2006, pp. 95-123.

²⁶³ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr. T Kakonda, Planning Division, MOE, Windhoek, Section 1.

discretionary (such as text books and capital spending) but which are also critical for current and future performance of the sector.” [However] “These gains were not made.”

There have been many achievements:

- The Net Enrolment Ratio for Grades 1 to 9 (primary cycle and first two years of junior secondary cycle) is 96.4 per cent.
- The enrolment ratio in senior secondary (grades 11 and 12) is about 55 per cent.
- Gender balance has been achieved at all levels though not in all regions.
- Survival to Grade 7 (end of primary education) is about 77 per cent of the age group, and survival to Grade 10 (final year of junior secondary education) is 55 per cent.
- 83.5 per cent of secondary teachers and 55.6 per cent of primary teachers have pedagogical training (i.e. the teachers hold at least the Basic Education Teacher Diploma [BETD]).

To achieve these ends, the proportion of the GDP allocated to education between 1997 and 2003 averaged 8.95, with a peak of 9.7 percent in 2001/2002. This level could not be sustained, and revenue to the education sector began to decline in real terms. The education budget draws a distinction between development funds and operational expenditure. In recent years, a proportion of the development budget has been diverted to pay for operational costs. This has affected the Basic Education development budget in particular, leading to a reduction of 0.7 per cent in 2004/2005 and 0.49 per cent in 2005/2006. This has impacted on the extension and renovation of school and college buildings since it is the Development Budget that is used to provide adequate physical facilities such as schools, hostels, laboratories, latrines and teacher housing. As the Expenditure Issues Review paper outlines, this points to the need for the sector to adjust its cost base as a matter of urgency²⁶⁴.

5.3.1 Education challenges

Yet there are still many challenges facing the education sector, including:

- the need to get better returns from the investment in education,
- the need to orientate the education service to better support the development goal of transforming Namibia into a Knowledge-based Economy,
- the need to address access and equity issues,
- the inefficient use of resources, and
- the need to improve the quality of the output from the senior secondary level in order to address the shortage of skilled labour²⁶⁵.

In particular, “the lack of senior secondary education has negative implications on job creation, self employment and results in lack of skilled labour”²⁶⁶. Just 47 per cent of learners completing junior secondary school each year find a place at a senior secondary school²⁶⁷. Just one in three Namibians get to secondary school²⁶⁸. The lack of space has contributed to youth unemployment

²⁶⁴ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr. T Kakonda, Planning Division, MOE, Windhoek, Section 2.

²⁶⁵ Republic of Namibia, *Education and Training Sector Improvement Programme (ETSIP), Planning for a Learning Nation: Programme Document Phase I (2006-2011)*, February 2007, pp. 18-19.

²⁶⁶ Ibid. p. 24.

²⁶⁷ Office of the President, National Planning Commission, *Millennium Challenge Account: Namibia*, Windhoek, Office of the President, 2007, p. 71

²⁶⁸ Ibid. p. 72.

and poor skills development, which hampers economic development²⁶⁹. As a direct result, the ultimate objective is “to expand access and capacity of senior secondary education” through, among other things, diversifying delivery modes including “intensifying the use of open learning programmes, such as NAMCOL centres”²⁷⁰.

As part of the expansion of secondary education, six new secondary schools are to be built, each with a capacity for 980 learners per year including 760 in hostels and (in existing schools) 50 blocks of three classrooms each, each block having a capacity for 150 learners²⁷¹. Whether this will be achieved will depend on funding and the extent to which rising building costs (influenced by South Africa’s preparations for the 2010 Soccer World Cup) impact on the plans.

5.3.2 Improving efficiency in education

Among the measures that would improve efficiency in the education system, the Education and Training Sector Strategic Improvement Plan looks for ways of reducing the unacceptably high level of repetition rates, which range from 12.5 to 21.5 per cent per grade per year. Between 12 and 21 per cent more learners could be accommodated in each grade with no additional resources if repetition rates could be brought down. Drop-out rates, low for the first six years of education, climb from then on to reach 44 per cent in Grade 10 – the end of compulsory education²⁷². A range of measures to improve the efficiency of the system is being examined.

Against this backdrop, the Education and Training Sector Strategic Improvement Programme (ETSIP) seeks, within its prime “focus on strengthening of the immediate supply of middle to high level skilled labour, to meet market demands and support overall national development goals”²⁷³. It will do this by operationalising three main components:

- “(a) a pro-poor expansion of opportunities for high quality senior secondary education;
- (b) a pro-poor expansion of opportunities for high quality and market responsive vocational education and training; and
- (c) an expansion of pre-entry programmes for tertiary education and training”²⁷⁴.

Implementation of these components implies a series of other actions including the implementation of a number of quality enhancing measures and greater efficiency in resource utilisation²⁷⁵. A further critical priority, among others, is the creation of an enabling environment for the development of lifelong learning²⁷⁶. Also stressed in relation to general education is the need to improve the quality and relevance of textbooks, books and materials²⁷⁷.

²⁶⁹ Ibid. p. 71

²⁷⁰ Republic of Namibia, *Education and Training Sector Improvement Programme (ETSIP), Planning for a Learning Nation: Programme Document Phase I (2006-2011)*, February 2007, pp. 24-5.

²⁷¹ Office of the President, National Planning Commission, *Millennium Challenge Account: Namibia*, Windhoek, Office of the President, 2007, pp. 40-41, 72, 74.

²⁷² Republic of Namibia, *Education and Training Sector Improvement Programme (ETSIP), Planning for a Learning Nation: Programme Document Phase I (2006-2011)*, February 2007, p. 28.

²⁷³ Republic of Namibia, *Education and Training Sector Improvement Programme (ETSIP), Planning for a Learning Nation: Programme Document Phase I (2006-2011)*, February 2007, p. 2.

²⁷⁴ Ibid. p. 3.

²⁷⁵ Ibid. p. 3.

²⁷⁶ Ibid. p. 4.

²⁷⁷ Ibid. p. 6.

Lack of a distance education policy

Missing is any coherent policy underpinning the role that distance education methods might play in these actions²⁷⁸, including:

- the impact that distance education programmes have on the quality of learning materials and textbooks,
- the potential to develop learners' self-learning skills,
- the key role it has played in opening up access to education for disadvantaged, marginalised and "missed-out" groups,
- the role it plays in lifelong learning and vocational education²⁷⁹, and
- the use of distance teaching technologies (particularly print and instructional radio) to improve teaching and learning in traditional classrooms.

Although, in the Namibian context, the average qualification of teachers is perceived to have the most significant impact on student performance taking costs into consideration according to a World Bank study, the cost-benefit ratios show that providing textbooks or a science laboratory is more than three and a half times more effective than further improvement in the qualification of teachers²⁸⁰ - and the use of NAMCOL texts in schools (already happening) could help here if they were used more widely. Also missing is any analysis of distance education's potential for lowering educational costs without diminishing and indeed sometimes enhancing quality²⁸¹.

5.3.3 Potential of distance education recognised

Crucially, however, ETSIP:

- acknowledges that the rate of improvement in the results of NAMCOL's alternative secondary education programme learners "has been significantly better than in formal education. NAMCOL has developed high quality localised instruction materials and is generally acknowledged to be a well-managed institution"²⁸²;
- indicates that educational radio programmes covering formal, vocational, tertiary and lifelong education and training are to be developed through a studio administered by NAMCOL as a joint venture between NAMCOL and tertiary institutions²⁸³, and

²⁷⁸ At the time of writing (June 2007), a two-person mission (Roger Mills, Ros Morpeth) undertaken by the International Research Foundation for Open Learning had just spent a short period in Namibia, working with NOLNet, to address this lack. A subsequent mission in October 2007 (Ros Morpeth, Greville Rumble) involving attendance at a NOLNet National Open and Distance Learning Consultative Seminar focused on the drawing up of a national ODL policy and a framework for strategy development.

²⁷⁹ See for example Louise Moran and Greville Rumble (eds.) *Vocational training through distance education: A policy perspective*, London, RoutledgeFalmer, 2004.

²⁸⁰ Cited in Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft), Section 4.

²⁸¹ On the issue of costs, see Greville Rumble, *The costs and economics of open and distance education*, London, Kogan Page, 1997.

²⁸² Republic of Namibia, *Education and Training Sector Improvement Programme (ET SIP), Planning for a Learning Nation: Programme Document Phase I (2006-2011)*, February 2007, p. 59. As part of the review of lifelong learning and adult education, ETSIP makes clear that the legal framework and funding formula for NAMCOL is to be reviewed and re-negotiated, and a review of adult education policy is to be led by the Directorate of Adult Basic Education in conjunction, where appropriate, with the NAMCOL Board (*ibid.* p. 60)

²⁸³ *Ibid.* p. 61.

- indicates that NAMCOL will diversify its programmes and make them more relevant to the needs of the education system and the economy as it positions itself to cope with an expected decline in the numbers of people seeking second chance secondary education²⁸⁴.

ETSIP acknowledges the role of the Namibian Open Learning Network Trust (NOLNet) in serving over 40 open learning centres and supporting the distance learning activities of NAMCOL, the National Institute for Educational Development, the Polytechnic of Namibia and the University of Namibia²⁸⁵. In this connection, it is worth mentioning that Namibia has recently published its third ICT Policy for Education, which identifies the implementation of ICTs in schools with secondary grades as second among the priorities chosen for development²⁸⁶. The policy sets development levels and schools with secondary level provision will be placed on at least level 2 – that is:

- At least one room will be available with ICTs with Internet connectivity for use in teaching basic ICT skills (word processing, Internet, e-mail).
- There will be one computer for every 5 staff and one for every 10 learners.
- Learning materials will be downloaded and occasionally created by teaching staff.
- All teachers will have a Foundation Level ICT Literacy Certificate
- At least two staff will have the Intermediate Level ICT Literacy Certificate or above.
- Students will have one class per week access²⁸⁷.

Already in 2005, some 350 schools had some kind of ICTs. Selection of the first 40 secondary schools for implementation began in June 2007 with a further 110 between September 2007 and April 2008. Schools without space and electricity will be identified for infrastructure development. NAMCOL has already developed a number of CD-ROM based lessons in physical sciences and mathematics for use by its learners, as well as learners in the formal system, which it is piloting in 2007. NAMCOL will clearly be able to build on the wider availability of ICTs in schools since it uses many schools as tutorial centres.

5.3.4 School enrolments

Table 5.8 below gives the total number of enrolments in the Formal Education System between 1999 and 2006, by level, and the proportion of the total school population, by level that is female. The “other” category embraces a range of special educational provision including classes offered in regular schools for children with learning difficulties, and in one of the eight special schools in the country. The 2006 enrolment figures are provided on a different base date (the returns made on the fifteenth day of the new school year) to the figures for the other years, which are drawn from the annual Education Statistics that are based on enrolments in August. The 2006 figures are not therefore comparable with those for the other years, being on average about 2.5 per cent higher than the August data.

²⁸⁴ Ibid. p. 61.

²⁸⁵ Ibid. p. 68.

²⁸⁶ Republic of Namibia, *ICT Policy for Education*, Ministry of Basic Education, Sport and Culture/Ministry of Higher Education, Training and Employment Creation, Windhoek, n.d. (2005), p. 9.

²⁸⁷ Republic of Namibia, ICTs in Education Steering Committee, *ICTs in Education Implementation Plan Guide 2006*, Windhoek, p. 13.

Table 5.8: Enrolments in the formal school system, 1999-2006

Year	Total	Sub-total Primary	Lower Primary	Upper Primary	Sub-total Secondary	Junior Secondary	Senior Secondary	Other
1999	500,071	382,291	230,579	151,712	115,771	92,963	22,808	2,009
2000	514,196	388,497	232,386	156,111	123,797	100,267	23,530	1,902
2001	528,958	396,252	237,274	158,978	130,577	105,643	24,934	2,129
2002	544,550	404,780	243,755	161,025	137,099	110,998	26,101	2,671
2003	553,197	408,597	245,776	162,930	141,752	114,441	27,311	2,668
2004	550,545	403,412	239,407	164,005	144,289	115,994	28,295	2,884
2005	555,096	404,198	239,590	164,608	148,104	119,605	28,499	2,794
*2006	568,018	409,229	242,143	167,086	156,261	125,088	31,173	2,528

* 2006 data based on 15the Day Statistics and not therefore fully comparable with EMIS²⁸⁸ data for 1999-2005.

Source:

MOE Educational Management Information System, Educational Statistics 2005, Table 19; 2006 data based on MOE 15th Day Statistics, 2006.

The proportion of female to male students (Table 5.9) indicates a good gender balance, with no discrimination against girls. As will be noted, the pattern here is very different than at NAMCOL, where two out of three of the students are women.

Table 5.9: Proportion of female enrolments, 1999- 2005

Year	Total	Sub-total Primary	Lower Primary	Upper Primary	Sub-total Secondary	Junior Secondary	Senior Secondary	Other
1999	0.51	0.50	0.49	0.51	0.53	0.53	0.50	0.43
2000	0.51	0.50	0.50	0.51	0.53	0.53	0.51	0.43
2001	0.51	0.50	0.50	0.51	0.53	0.54	0.51	0.43
2002	0.51	0.50	0.49	0.51	0.53	0.54	0.51	0.42
2003	0.51	0.50	0.49	0.51	0.53	0.54	0.50	0.43
2004	0.51	0.50	0.49	0.51	0.53	0.54	0.50	0.41
2005	0.51	0.50	0.49	0.51	0.53	0.54	0.51	0.42

Source:

MOE Educational Management Information System, Educational Statistics 2005, Table 19.

Most of the population in Namibia lives in the north or the country. It is here that the vast number of schools are located in the northern regions of Omusati, Oshana, Ohangwena, Oshikoto, Kavango and Caprivi, and in the capital Windhoek in Khomas region. Table 5.10 below shows the distribution of junior and senior secondary school learners in the formal system, by national regions grouped to correspond with NAMCOL's four regions – Central, North Eastern, Northern, and Southern. The table shows that:

²⁸⁸ EMIS: Educational Management Information System

- Roughly the same proportion of formal system students and NAMCOL subject enrolments come from the national regions covered by NAMCOL's Central and North Eastern Regions.
- In comparison with the formal system, a higher proportion of NAMCOL's subject enrolments come from those national regions covered by NAMCOL's Southern Region.
- The proportion of NAMCOL's subject enrolments based in NAMCOL's Northern region is lower than the proportion of the formal system's students coming from those regions. However, in absolute terms, NAMCOL's Northern and Southern regions account for three out of four of NAMCOL's subject enrolments – and this is true of the formal system's student numbers at secondary level.

5.3.5 Progression through the formal education system

Under ideal conditions a learner enters the system at Grade 1 at age 7 and progresses at the rate of a grade a year until he or she leaves at the end of Grade 12 at age 17 or 18. Most learners do indeed enter Grade 1 aged 6 or 7 – though just over 14 per cent enter aged 8 or above²⁸⁹. Repetition and early leaving may disrupt this progression (see Table 5.11). New entrants are learners who are in their present grade for the first time. Promotion rates are calculated by dividing the number of new entrants into a grade by the number of learners enrolled in the previous year in the previous grade. The Repetition Rate is the number of students in a grade who were enrolled in that grade in the previous year.

The rates given here, together with the school-leaving rate, are for the transition from the 2004 to the 2005 school year. The figures show that notwithstanding the virtual automatic progression from Grades 1 through 10, with students able to repeat just three years (one in lower primary, one in upper primary, and either years 8 or 9 in junior secondary, between one in ten and two in ten students repeat at each grade. Overall in 2005, over 100,000 of the total school population of 555,000 were too old for their grade – that is, older than one year above the appropriate age at Lower Primary, two years above that age in Upper Primary and three years above that age in Junior Secondary. In 2005, there were just over 9,000 learners who were older than 16 still in primary grades. In addition, in 2005 there were 15,438 learners aged 20 or over (2.8 per cent of the total school population) still in school²⁹⁰.

Table 5.12 shows the percentage of the total number of learners of a particular age in school, by grade. Thus 31.7 per cent of children aged six are in school – the vast proportion of them in Grade 1.

Table 5.11 shows that there is a steady leakage from the system as individuals leave school, which increases at junior secondary level and is particularly high at the first real formal public examination – the Grade 10 JSCE. At that point, more than half of the school population (around 53 per cent) end their formal education in school²⁹¹. In general the evidence suggests that very few of those who leave school early return to the formal system. Rates vary over the year but the significant rupture comes at Grade 10 when, following the gradual imposition of a policy that only allows learners aged under 17 to repeat Grade 10, a large proportion of learners leave the school system after they have written their Grade 10 examination.

²⁸⁹ Ministry of Education, Education Management Information System, *Education Statistics 2005*, Windhoek, EMIS MOE, 2006, Table 22.

²⁹⁰ Ibid. p. 51.

²⁹¹ Office of the President, National Planning Commission, *Millennium Challenge Account: Namibia*, Windhoek, Office of the President, 2007, p. 71.

The Survival Rate shows the percentage of learners *expected* to stay in school until they reach at least that particular grade assuming flow rates remain constant. One of the features of Namibia's Survival Rates is that they have been consistently higher for females than for males up to Grade 10²⁹² – a factor that perhaps explains why more women enter NAMCOL than do men.

²⁹² Ministry of Education, Education Management Information System, *Education Statistics 2005*, Windhoek, EMIS MOE, 2006, p. 58.

Table 5.10: Formal system secondary school population and NAMCOL student-courses by level, by national regions grouped into NAMCOL regions, 2003-2005; and NAMCOL student-courses by level and by NAMCOL regions, 2006

		NAMCOL Central Region			NAMCOL North Eastern Region			NAMCOL Northern Region			NAMCOL Southern Region				
2003		FORMAL	All	JSC	IGCSE	All	JSC	IGCSE	All	JSC	IGCSE	All	JSC	IGCSE	
Erongo	7,100	5,440	1660	Caprivi	8,460	6,550	1910	Ohangwena	18,281	16523	1,758	Hardap	5,618	4,309	1,309
Kunene	3,242	2,632	610	Kavango	13,246	10,944	2302	Omusati	23,889	19310	4,579	Karas	3,995	2,915	1,080
Otjozondjupa	6,941	5,822	1119					Oshana	15,863	12557	3,306	Khomas	17,377	12,219	5,158
								Oshikoto	14,002	11956	2,046	Omaheke	3,508	3,034	474
Total	17,283	13,894	3,389	Total	21,706	17,494	4,212	Total	7,2035	60,346	11,689	Total	30,498	22,477	8,021
%	0.12	0.12	0.12		0.15	0.15	0.15		0.51	0.53	0.43		0.22	0.20	0.29
NAMCOL	7,208	4,078	3,130		6,380	3,206	3,174		27,213	17,208	10,005		16,516	7,001	9,515
%	0.13	0.13	0.12		0.11	0.10	0.12		0.47	0.55	0.39		0.29	0.22	0.37
2004	FORMAL														
Erongo	7,181	5,504	1677	Caprivi	8,156	6,157	1999	Ohangwena	19,252	17,304	1948	Hardap	5,573	4,281	1,292
Kunene	3,246	2,586	660	Kavango	14,151	11,626	2525	Omusati	24,286	19,608	4678	Karas	4,251	3,200	1,051
Otjozondjupa	6,289	5,122	1167					Oshana	20,381	12,310	3393	Khomas	18,277	13,017	5,260
								Oshikoto	14,305	12,149	2156	Omaheke	3,423	2,934	489
Total	16,716	13,212	3,504	Total	22,307	17,783	4,524	Total	78,224	61,371	12,175	Total	31,524	23,432	8,092
%	0.12	0.11	0.12		0.15	0.15	0.16		0.54	0.53	0.43		0.22	0.20	0.29
NAMCOL	6,729	3,724	3,005		6,297	3,215	3,082		26,612	15,134	11,478		15,209	6,924	8,285
%	0.12	0.13	0.12		0.12	0.11	0.13		0.47	0.53	0.41		0.28	0.23	0.34

2005 FORMAL																
Erlango	7,327	5,624	1,703	Caprivi	8,047	6,074	1,973	Ohangwena	19,827	17,799	2,028	Hardap	5,676	4,443	1,233	
Kunene	3,462	2,792	670	Kavango	14,125	11,622	2,503	Omusati	24,747	20,030	4,717	Karas	4,622	3,555	1,067	
Otjozondjupa	7,200	5,976	1,224					Oshana	16,116	12,747	3,369	Khomas	19,174	13,828	5,346	
								Oshikoto	14,238	12,084	2,154	Omaheke	6,254	3,462	2,792	
Total	17,989	14,392	3,597	Total	22,172	17,696	4,476	Total	74,928	62,660	12,268	Total	35,726	25,288	10,438	
%	0.12	0.12	0.13		0.15	0.15	0.16		0.51	0.52	0.43		0.24	0.21	0.37	
NAMCOL	6,963	3,626	3,337		6,755	3,483	3,272		25,547	15,612	9,935		15,156	6,603	8,553	
%	0.12	0.13	0.13		0.12	0.12	0.12		0.48	0.52	0.43		0.27	0.23	0.32	
2006	NAMCOL	7,270	3,819	3,451		6,726	3,503	3,223		26,581	14,916	11,665		16,851	7,290	9,561
	%	0.13	0.13	0.12		0.12	0.12	0.12		0.46	0.51	0.42		0.29	0.25	0.34
Sources: MOE Educational Management Information System, Educational Statistics, 2003, 2004, 2005, Table 13; NAMCOL Statistical Digest, 2003 (Table 2.2), 2004, 2005 (Appendix, Table 1), 2006 (NAMCOL Enrolment Statistics 2006).																

Table 5.11: Numbers of new entrants, repeaters and re-entrants, Grades 1-12 (2005); school leavers 2004; Promotion, Repetition and School-leaving rates, Grades 1-11 (2004 to 2005 transition); and Survival Rates to Grades 2 to 12 (2004)

	2005: # of New Entrants, Repeaters, and Re-entrants				School-leavers 2004	Promotion, Repetition and School-leaving rates, 2004 to 2005			Survival Rate, 2004
Grade	Total enrolment	New entrants	Repeaters	Re-entrants	Approx. numbers leaving school	Promotion Rates (%)	Repetition Rates (%)	School-leaving rates (%)	Survival to grades 2 to 12 (%)
100% =	552,302	467,344	81,938	3,020	49,202	77.5	15.9	6.6	100
PRIMARY									
1	66,210	53,803	11,959	448	2,110	77.1	19.6	3.3	n/a
2	57,253	48,748	8,176	329	947	84.4	14.1	1.6	96
3	58,217	50,954	6,930	303	1,186	85.4	12.6	2.0	94
4	57,910	49,418	8,172	320	1,415	82.9	14.7	2.4	92
5	61,589	47,962	13,308	319	2,992	73.0	22.1	4.9	89
6	51,972	44,938	6,828	206	2,361	82.2	13.3	4.5	84
7	51,047	43,299	7,551	197	3,618	77.2	15.6	7.3	79
SECONDARY									
8	49,692	38,388	11,040	264	4,275	68.2	23.1	8.7	73
9	39,741	33,370	6,114	257	3,449	74.3	16.7	9.0	64
10	30,172	28,318	1,746	108	12,608	50.0	6.4	43.6	57
11	14,777	14,445	80	252	268	95.8	2.3	1.9	31
12	13,722	13,701	4	17	13,973	n/a	n/a	n/a	30

SOURCE: MOE Educational Management Information System, Educational Statistics 2005, Tables 29, 33, 30, and 31

Table 5.12: Rates of enrolment of 6 to 18 year olds, by grade, 2005

Total	Age												
	6	7	8	9	10	11	12	13	14	15	16	17	18
Grade													
Lower Primary	1	30.7	69.2	24.9	8.4	3.1	1.2	0.6	0.4	0.1	0.1	0.0	0.1
Primary	2	0.3	15.3	51.4	28.1	12.1	5.1	2.5	1.2	0.5	0.3	0.1	0.0
	3	0.0	0.3	13.8	46.1	28.2	14.0	7.6	3.9	1.8	1.2	0.4	0.2
	4	0.0	0.3	12.8	41.3	28.2	16.3	8.9	4.5	2.7	1.0	0.4	0.2
Upper Primary	5		0.0	0.3	10.8	38.6	30.0	21.1	11.5	7.1	3.0	1.3	0.5
Secondary	6			0.1	0.3	9.2	32.2	25.6	16.5	11.7	5.8	2.8	1.2
	7				0.0	0.0	0.4	9.2	31.3	23.4	19.0	10.6	6.1
Junior Secondary	8				0.0	0.0	0.5	8.5	26.8	24.4	17.6	12.3	7.4
Secondary	9					0.0	0.0	0.5	8.0	23.1	16.4	13.4	9.5
	10						0.0	0.0	0.6	7.5	18.4	14.4	9.5
Senior Secondary	11							0.0	0.5	5.2	10.6	6.7	
Other grades	12								0.0	0.0	0.6	5.2	9.5
Other grades		0.7	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.3	0.2

Source: MOE Educational Management Information System, Educational Statistics 2005, Table 27

Table 5.13 gives the Gross Enrolment Ratio (GER) and Net Enrolment Ratio (NER) for the period 2000 to 2005. The GER measures the total enrolment in a range of grades divided by the number of people in the population of an age that should be enrolled in those grades. GER values over 100% indicate the presence of overage learners enrolled in a specific school phase. The NER is the number of learners of an appropriate age enrolled in range of grades, divided by the number of people in the population of the same age group. An NER at or near 100 per cent would indicate that all or most children of the relevant age group are in school and are progressing at the ideal rate (that is, being promoted each year). In Namibia, children normally start primary school at age 7. Data indicates reasonable performance to the end of primary education.

Table 5.13: Net Enrolment Ratios (NER) and Gross Enrolment Ratios (GER), 2000-2005

	NER		GER	
	Grades 1-7	Grades 8-12	Grades 1-7	Grades 8-12
2000	91.3	45.4	119.4	64.1
2001	89.1	48.3	114.9	67.3
2002	93.7	48.2	117.8	51.1
2003	95.7	52.0	120.5	70.3
2004	94.0	51.8	118.8	61.8
2005	93.6	49.5	117.3	63.0

Table 5.13 (Continued)

	NER MALES		NER FEMALES		GER MALES		GER FEMALES	
	Grades 1-7	Grades 8- 12	Grades 1-7	Grades 8-12	Grades 1-7	Grades 8-12	Grades 1-7	Grades 8-12
2000	89.0	40.1	87.0	42.7	119.5	60.8	119.2	67.4
2001	87.0	42.7	93.5	50.6	114.9	63.4	114.9	71.1
2002	92.7	43.9	94.4	52.4	119.5	45.9	116.2	56.0
2003	95.0	27.2	96.3	56.6	122.6	67.2	118.5	73.2
2004	92.7	46.9	95.2	96.4	120.4	65.0	117.2	71.1
2005	91.7	44.8	95.4	54.1	118.3	59.8	116.3	66.0

Source:
MOE Educational Management Information System, Educational Statistics 2000, 2001, 2002, 2003, 2004, 2005, Table 28

In the period covered by Table 5.13, the Primary Level GER has been reasonably stable (in the range of roughly 115 to 120). In 1994, it was 138 per cent, and in 1999, 123 per cent. A decreasing GER indicates that over-aged learners are moving out of the system, to be replaced by learners of the appropriate school attendance age. This trend would also be helped by Namibia's current rules on promotion, which encourage virtual automatic promotion through the primary grades into junior secondary level.

5.3.6 Funding of schools

Although there is a private sector, in general terms it is the government that carries most of the burden of providing general education. Of the 555,096 learners in school in 2005, 528,735 attended State schools, and 26,361 (4.7 per cent) private schools²⁹³. Table 5.14 below provides information on the number of public and private schools in Namibia in 2005:

Table 5.14: Number of public and private schools in Namibia, 2005

Type of school	All	# Public	# Private	% private
Primary	1,045	986	59	5.6
Combined*	406	383	23	5.7
Secondary	164	149	15	9.1
Other	11	11	0	0.0
Total	1,626	1529	97	6.0

* A combined school covers elements of both the primary and secondary curriculum.
Source: Ministry of Education, Education Management Information System, *Education Statistics 2005*, Windhoek, EMIS MOE, 2006, front piece.

The higher proportion of private schools at the secondary level may reflect either the shortage of provision at this level or acceptance by more wealthy parents of standards in State primary schools, coupled with a desire to improve their children's chances of success at the secondary level. This does not mean that there are not excellent State secondary schools – there clearly are

²⁹³ Ministry of Education, Education Management Information System, *Education Statistics 2005*, Windhoek, EMIS MOE, 2006, frontispiece

some: there are just not enough to meet demand, which is why there is a school building programme underway.

In the meantime, the government subsidises private (fee-charging) schools throughout the country. The Education Training Sector Improvement Plan includes an objective to remove the subsidy to profit-making private schools, the level of reduction being tied through a formula to the level of fees charged by the school. In some cases, the subsidy would be wholly removed. Meanwhile, the public subsidy ranges from a minimum of the public salary equivalent of the teachers to a maximum that includes a square meter tariff for the areas that the school uses for education facilities and a subsidy for materials and supplies.

The justification of subsidy provision is that these private schools are engaged in the provision of education. In their absence, the government would have to provide these services. The government subsidy provided to learners in these schools ranged from NA \$3,003 to NA \$2,604²⁹⁴.

5.3.7 Primary and secondary education provision

Although there is a clear distinction between primary and secondary education, within schools this division is not clear-cut. While many schools do teach only at the primary level and some also teach only at the secondary level, there are a number of combined schools that cross the division between primary and secondary schooling. In 2005, for example there were 1,626 schools, both public and private. Of these²⁹⁵:

- At Primary Level, there were 357 schools offering either the full Lower Primary curriculum or – in the case of new schools – some of the lower primary grades; and 681 schools offered the Lower and Upper Primary curriculum or a combination of lower and some of the upper primary grades. There were also nine Upper Primary schools offering just Grades 5 to 7.
- Of those combined schools that teach at both Primary and Secondary levels, 366 schools offered the full or most of the Lower Primary to Junior Secondary grades (Grades 1 to 10); 21 schools offered some or all of the Upper Primary and Secondary grades (Grades 5 to 10); and 118 schools offered the full or most of Grades 1 to 12. In addition, three private schools in Windhoek offered Grades 1 to 13 – Grade 13 being equivalent either to the Advanced level or the *Hochschulreifeprüfung (Abitur)*.
- At Secondary Level, 68 schools offered Grades 8 to 10 (junior secondary level only), and 99 offered all or most of the secondary school Grades 8 to 12. In addition, one school offered Grades 11 and 12 only.
- There were three “Other” Schools.

5.3.8 Implications of automatic promotions

Free education is provided to all in Namibia under Article 20 of the Constitution up to the end of primary education or to the age of 16, whichever comes first. Primary education is compulsory. Children enter Grade 1 at the age of seven and follow the lower and upper cycles (Grades 1 – 4 and 5 – 7 respectively). For efficiency reasons, a semi-automatic promotions policy was adopted

²⁹⁴ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr T Kakonda, Planning Division, MOE, Windhoek, Section 4.

²⁹⁵ Ministry of Education, Education Management Information System, *Education Statistics 2005*, Windhoek, EMIS MOE, 2006, Table 3.

in 1996, under which learners are allowed to repeat just one grade in each primary school cycle (Grades 1 to 4, 5 to 7). At the end of their primary education (nominally at age 13), students proceed to Junior Secondary Education (Grades 8-10). Here too learners are permitted to repeat just one of Grades 8 and 9, but not Grade 10.

One of the results of this virtually automatic promotions policy is that the Net Enrolment Ratio for Grades 1-9 is 96.4 per cent²⁹⁶. Although there is a continuous assessment policy that in theory monitors learners' achievements, Marope *et al* reported a lack of correspondence in a large number of schools between continuous assessment scores given by teachers and scores obtained in examinations. This suggests that teachers over-mark and that as a result, learners are being promoted without having mastered key competencies.

Performance in the Grade 10 Junior Secondary Certificate Examination (JSCE) is correspondingly disappointing²⁹⁷. A further result of the policy of not letting learners repeat Grade 10 (with the exception of those under 17) is that, at this stage, there is virtually no where else for them to go except NAMCOL.

5.3.9 NAMCOL's approach

NAMCOL's system takes account of the subject passes that students already have, thus giving these students the option to take just those subjects that they have failed outright or only gained a grade D, E, F or G grade. NAMCOL also lets its students take only six JSC subjects since passes in six subjects is all that is required to move on to senior secondary level.

Although NAMCOL does not have complete or wholly accurate data on the proportion of its JSC students who are taking their JSC for the first time (i.e. those who never studied JSC subjects at a traditional school), all the indications are that the vast majority of its JSC students are repeaters trying to improve their grades and thus avoid reaching the end of their formal educational "ladder" (see Table 5.15). NAMCOL's data suggests that the proportion of those taking JSC through NAMCOL for the first time is insignificant. Indeed, most of NAMCOL's students at both the JSC and International General Certificate of Secondary Education (IGCSE) level have enrolled to improve their grades.

The Tracer Study of NAMCOL students undertaken in late 2006 by Dr. Alicia Fentiman supports this conclusion. Dr. Fentiman's research focused on former IGCSE students who were enrolled in NAMCOL between 1999-2001 when an average of just over 4,000 IGCSE learners were registered in each of these years. As Fentiman acknowledges, she had some difficulty in tracing NAMCOL students from this period. She also faced some scepticism on the part of students about the use to which the research was going to be put. As a result, she was only able to obtain 478 completed questionnaires and conduct 75 in-depth interviews with ex-NAMCOL IGCSE

²⁹⁶ Republic of Namibia, *Education and Training Sector Improvement Programme (ETSIP): Planning for a Learning Nation. Programme Document Phase I (2006-2011)*, February 2007, p. 18.

²⁹⁷ Mmantsela Marope, Keiichi Ogawa, Albert Tuijnman, and Charmaine Villet, *Adapting the General Education System to Better Support Namibia's Transition to a Knowledge-based Economy*, Report No. 05/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity, EW-P078682-ESW, Paragraph 3.3.10.

students. However, 95 per cent of the students who completed the questionnaire indicated that they had enrolled in NAMCOL to improve their grades or “points” in the IGCSE examinations²⁹⁸.

Table 5.15: Proportion of NAMCOL students taking the JSC and IGCSE for the first time, or for re-sit purposes, 1999, 2003, 2007

	JSC first time	JSC re-sit	IGCSE first time (NSSC in 2007)	IGCSE re-sit (NSSCO in 2007)	
1999	0.18	0.82	0.44	0.56	
2003	0.08	0.92	0.38	0.62	
2007	0.07	0.93	0.18	0.82	
Notes:					
"Resit" includes those who failed in the formal system and those who passed but are trying to improve their grades.					
n/a: new software introduced at the start of 2000 meant that this data became unavailable.					
The figures should be treated with care.					
Source: NAMCOL, Statistical Digest 1999, Figure 1.5; 2003 (p. 11); 2007 data supplied by NAMCOL 15/5/07					

The Junior Secondary Certificate Examination (JSCE) acts as a gateway for entry to Senior Secondary education (Grades 11 and 12). To progress beyond junior secondary school, students are required to reach a certain standard in the examination in their best six subjects, as well as passing English. The government has raised the level of performance (points score) at which it will allow those who pass the JSCE to progress to senior secondary school in order both to raise standards and contain senior secondary numbers within existing capacity, financial as well as physical. The number of points needed at Grade 10 to progress to Grade 11 within the State system has gone up from 22 points in 2000 to 23 points (2001 on) and now to 24 points²⁹⁹.

5.3.10 Senior secondary routes

At the Senior Secondary school level there are, in theory, two routes open to candidates – the “ordinary” and the “higher” route. The International General Certificate of Secondary Education (IGCSE) and its replacement, the Namibia Senior Secondary Curriculum Ordinary Level (NSSCO), differ from the Higher International General Certificate of Secondary Education (HIGCSE) and Namibia Senior Secondary Curriculum Higher Level (NSSCH) in three respects: content, pace and prospective outcome.

Promotion from Grade 11 to grade 12 is virtually automatic. All students entering Grade 11 in January of their Year 11 start with the IGCSE curriculum. Whereas the vast majority of students

²⁹⁸ Alicia Fentiman, *Tracer Study of former NAMCOL learners: Research Report*, Cambridge, IRFOL, Centre for Educational Research and Development, Von Hügel Institute, St Edmund's College, February 2007, Section 3.10.

²⁹⁹ Ministry of Education, Educational Programmes Implementation, Internal memorandum, A J to EMT (dated 31 March 2005) *Re Feedback on a Review of the 2004 Examination Results: An Updated Version of the Tracer Study (2003), a Comparative Summary of the 2004 (H)IGCSE and JSC Results*.

progressed through the IGCSE curriculum over two school years, “high fliers” who are at one of the 48 schools that offered the HIGCSE were able to take the IGCSE curriculum at speed (completing this within about eight to nine months) before moving on to the more advanced HIGCSE curriculum. Prior to their examinations in their second year they could, with advice from their school, decide whether they would enter for the HIGCSE examination in their subject, or sit the easier IGCSE examination.

Similar arrangements are now in place for the NSSCO and NSSCH. The implications of a student’s choice are far-reaching; only students who have obtained four passes in HIGCSE subjects are eligible to attend a South African university – and it is higher education there that will provide Namibia with the advanced knowledge workers that it needs if it is to enter the ranks of those countries with a Knowledge Economy. In 2004, only 32 of the 48 schools offering the HIGCSE produced candidates qualified for entry to the South African university system. Just 465 individuals (15 per cent of all candidates) qualified to study in South Africa³⁰⁰. Due to the requirements of the programme, NAMCOL is not able to offer NSSCH courses.

The points achieved in the Grade 12 examinations also govern entry to post-senior secondary school destinations within Namibia. For example, under IGCSE the ultimate aim was to gain passes in IGCSE at grades A (7 points), B (6 points) and C (5 points), together with a minimum grade in English. The minimum requirements in 2004 were:

- For a government job, minimum 20 points from any selection of five subjects, together with an E+ in English.
- For entry to a College, minimum 25 points in six subjects all passed at grades A, B or C, together with an E+ in English.
- For entry to the Polytechnic of Namibia, minimum 25 points in six subjects all passed at grades A, B or C, plus an E+ in English.
- For entry to the University of Namibia, minimum 25 points in five subjects all passed at grades A, B or C, together with a D+ in English.

The Education Statistics produced by the Education Management Information System do not show destination statistics for those leaving school at the end of either Grade 10 or Grade 12. They do, of course, provide information on the internal promotion rate from Grade 10 to 11 (junior to senior secondary school). This has fluctuated between 48 per cent and 58 per cent in the period 1998 to 2004. In 2000 and 2001, just 19 per cent of IGCSE candidates passed with A, B and C grades, and in 2002, 2003 and 2004, just 20 per cent did. In other words, as A J Gous comments in his Tracer Study on the 2004 results, only 20 per cent of the students who finish Grade 12 students have an academic future³⁰¹.

Performance in the JSCE examinations influences students’ chances of success at IGCSE/HIGCSE level³⁰². The data shows that of those entering Grade 11 with the minimum

³⁰⁰ Ministry of Education, Educational Programmes Implementation, Internal memorandum, A J Gous to EMT (dated 31 March 2005) *Re Feedback on a Review of the 2004 Examination Results: An Updated Version of the Tracer Study (2003), a Comparative Summary of the 2004 (H)IGCSE and JSC Results*.

³⁰¹ Ministry of Education, Educational Programmes Implementation, Internal memorandum, A J Gous to EMT (dated 31 March 2005) *Re Feedback on a Review of the 2004 Examination Results: An Updated Version of the Tracer Study (2003), a Comparative Summary of the 2004 (H)IGCSE and JSC Results*.

³⁰² Ministry of Education, Educational Programmes Implementation, Internal memorandum, A J Gous to EMT (dated 31 March 2005) *Re Feedback on a Review of the 2004 Examination Results: An Updated Version of the Tracer Study (2003), a Comparative Summary of the 2004 (H)IGCSE and JSC Results*.

points necessary to enter senior secondary school, around 9 out of every 10 students will not gain sufficiently good grades in their senior secondary examination to be eligible for a government job, and none will get into higher education (Table 5.16). Those with 27 points in the JSCE examinations will have some chance (around 1 in 2) of being eligible for a government job, while 1.5 to 2 in 10 will be eligible to enter some form of tertiary education in Namibia (Table 5.17).

Table 5.16: Potential eligibility of Grade 12 graduates who entered Grade 11 with the minimum qualifications

Senior Secondary School Cohort	Entering Grade 11 with the minimum pts needed that year	2004 cohort: % eligible to enter govt job or HE in Namibia on leaving Grade 12		
		Ineligible for govt job (under 20 pts at IGCSE)	Eligible for govt job (20 – 24 points at IGCSE)	Eligible for HE in Namibia (25 points + at IGCSE)
2000-2002	22	0.92	0.08	0
2001-2003	23	0.88	0.11	0
2002-2004	23	0.92	0.08	0

Table 5.17: Potential eligibility of Grade 12 graduates who entered Grade 11 with 27 points

Senior Secondary School Cohort	Entering Grade 11 with 27 points	2004 cohort: % eligible to enter govt job or HE in Namibia on leaving grade 12		
		Ineligible for govt job (under 20 pts at IGCSE)	Eligible for govt job (20 – 24 points at IGCSE)	Eligible for HE in Namibia (25 points + at IGCSE)
2000-2002	27	0.4	0.6	0.16
2001-2003	27	0.52	0.48	0.14
2003-2004	27	0.44	0.56	0.2

Gous's study also indicated that success in English was crucial to overall success. Students who obtain an F in English at Grade 10 have only a 10 per cent chance of passing Grade 12 and being eligible for a government job, whereas those with a D in English at Grade 10 have a 91 per cent chance of passing Grade 12. Similarly, students who obtain a Grade F in English at Grade 10 have no chance of entering higher education in Namibia, whereas a Grade C pass gives them a two-thirds (67 per cent) chance of doing so (Table 5.18).

Table 5.18: Potential eligibility of Grade 12 graduates who entered Grade 11 with Grades C, D, E, and F in the JSCE

Grade 10 results in English	2004 cohort: Eligibility on the basis of their IGCSE results		
	Ineligible for govt job	Eligible for govt job	Eligible for HE
Grade F	90%	10%	0%
Grade E	34%	66%	16%
Grade D	9%	91%	44%
Grade C	0%	100%	67%

One other significant fact to come out of Gous's Tracer Study was that the points scored by students in the JSCE act as a powerful predictor to success in the HIGCSE and (by extension) the new NSSCH³⁰³: In 2004:

- Students with 34 to 36 points at Grade 10 have a 4 per cent chance of success in HIGCSE.
- Students with 37 to 39 points at Grade 10 had a 15 per cent chance of success in HIGCSE.
- Students with 40 to 42 points at Grade 10 had an 81 per cent chance of success in HIGCSE.

5.4 Secondary schooling within the context of labour market

It is against this background that it is worth exploring the relationship between schooling and the labour market.

Education *per se* is widely seen as a necessary precondition for economic growth within the “knowledge-driven” economies of the late twentieth and early twenty-first centuries. Although Professor Alison Wolf has recently questioned the link between it and economic growth³⁰⁴, there is a clear connection between education and private benefit as measured by the rate of return. As she concludes, for individuals “Get educated, get richer” seems like sound advice³⁰⁵.

Moreover, in countries where wage differentials between the educated and the under-educated are significant and even widening (as in the USA and the UK), teenagers and their parents know that without a qualification, an individual is increasingly unlikely to be considered for a job, whatever the qualifications *actually* (as opposed to *formally*) required to do it³⁰⁶. Not surprisingly, ambitious young adults who have the potential to improve their educational standard will wish to do so, in an attempt to gain some status on the qualifications ladder, and hence in the job market.

Education therefore matters to individuals, and this is as true in Namibia as elsewhere. As long as individuals (and their parents) understand that educational qualifications matter when it comes to securing any, let alone well-paid, employment, there will be a continuing demand for education. It is not, therefore, surprising that public rhetoric also stresses the value of education to individuals and society.

But if education matters, the next question must be: what kind of education is most important? The first pre-requisite is the possession of basic academic skills. As Wolf comments, ‘Poor literacy and numeracy – especially the latter – have a devastating effect on people’s chances of well-paid and stable employment’³⁰⁷. At the other end of the spectrum, there is a clear payback from the possession of higher-level qualifications, although at the top end of the qualifications scale, the wage premium enjoyed by graduates varies depending upon the subject studied. In between is a vast array of qualifications more or less directly tied to vocational outcomes.

³⁰³ Ministry of Education, Educational Programmes Implementation, Internal memorandum, A J Gous to EMT (dated 31 March 2005) *Re Feedback on a Review of the 2004 Examination Results: An Updated Version of the Tracer Study (2003), a Comparative Summary of the 2004 (H)IGCSE and JSC Results*.

³⁰⁴ Alison Wolf, *Does education matter? Myths about education and economic growth*, London: Penguin Books, 2002, p. 24.

³⁰⁵ Ibid. p. 21.

³⁰⁶ Ibid. p. 177.

³⁰⁷ Ibid. p. 34.

At the public policy level, there has been a significant shift in thinking over the last 30 years as policymakers and politicians have come to argue that the real purpose of education is to prepare people for the world of work and to promote economic growth. In this context, it is increasingly argued that spending on education needs to be properly targeted to develop the skills and knowledge that modern economies require.

5.4.1 Weaknesses in the education system

These commonly held views inform a great deal of what has been written about the relationship between education and the economy in Namibia. Against an existing “acute shortage of skilled labour across all sectors of the economy”, and predictions that the demand for skilled labour will only grow³⁰⁸, Dr Marope’s recent study on *Namibia Human Capital and Knowledge Development for Economic Growth with Equity* (2005) argued that “in its current state the education and training system [in Namibia] cannot effectively support either the attainment of national development goals or the aspired for transition to a [Knowledge Economy]”³⁰⁹. Among the key weaknesses that she identified in the education system³¹⁰ are:

- poor learning outcomes,
- the inefficiency of the system (e.g. repetition and drop-out rates),
- persisting inequalities including “pockets of inequality of access” that in particular affect rural areas and some language groups, as well as lack of access to secondary education³¹¹, and
- poor relevance to the economy (“the education and training system fails to meet labour market skills requirements”³¹²).

Similar sentiments underpin government policy. Following a fundamental review of the performance of its economy, the Government of Namibia articulated a broad development framework with the aim of achieving a level of development and a quality of life comparable to the developed world³¹³. This Vision specifically recognises the key role of education and training in driving development and achieving the goal of transforming Namibia into a Knowledge Economy.

Such an economy, it is argued, would have an improved capacity to apply knowledge and technology in ways that will improve productivity and in turn, lead to a virtuous circle in which high productivity leads to “better profitability, improved investment returns, and reduced

³⁰⁸ Mmantsetsa Toka Marope, *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*, Africa Region Human Development Working paper Series No. 84, Human Development Sector, Africa Region, The World Bank, 2005, §2.22, p. 13.

³⁰⁹ Ibid. §8.1, p. 95.

³¹⁰ Ibid. pp. 95-97.

³¹¹ Ibid. §8.9, p. 96.

³¹² Ibid. §8.10, p. 96.

³¹³ Office of the President, *Approach to Namibia: Vision 2030*, Windhoek, National Planning Commission, 2001.

domestic capital flight”³¹⁴. A prior condition of achieving a Knowledge Economy is “the development of a knowledge society (educated, skilled, ICTs-savvy)”³¹⁵.

The development of such a society is a challenge, given that from about 1993 on, a decline in productivity was attributed among other factors to inadequate skill levels in the labour force. As Marope commented: “productivity is correlated to high human skills. For instance, Namibia’s firms record high units of outputs if they have a critical mass of employees with tertiary education and training. The same relationship could not be found with respect to employees with primary education”³¹⁶.

Low levels of education are not only associated with poor productivity. There is also a close correlation between lack of skills/education and unemployment³¹⁷. Indeed, Namibia’s current education and training system is not delivering sufficiently high levels of highly educated and trained labour to meet demand. There is a shortage of employment-based training and skills development opportunities³¹⁸. Industry offers task-specific training that fails to provide transferable skills and hence fails to support labour mobility. The low skills base then runs the danger of “locking Namibia into a vicious cycle” where skills shortages attract Foreign Direct Investments that require low skilled labour and hence have little interest in breaking the cycle by investing in skills development.

5.5 Cost-benefits of education

Cost-benefit seeks to measure in economic terms the benefit of education to the individual, the employer and society. In all three cases, education is treated as an investment decision in which the cost of education (to the individual, the employer, and the state) is measured against the economic benefits that flow from that investment, as measured through increased lifetime earnings, increased productivity and profit, and increased revenues from taxation on higher earnings.

In general, because the cost of education is heavily subsidised by the state, private rates of return are usually higher than social rates of return. Lack of access to education in developing countries tends to push up the rates of return on education in those countries, when compared with developed countries. The private and social rate of return on primary education rise to infinity in those societies where basic skills are a *prerequisite* for productive employment, while the rate of return on basic education (as measured through increased earnings) tends to diminish to the extent that a particular level of education has become a more or less universal norm. Better rates of return are gained from those levels where universal access has yet to be achieved. The private rate of return on higher education tends to exceed that of secondary education, in part because of the heavy subsidies given to those entering higher education, and in part because access to higher education is often rationed.

³¹⁴ Mmantsetsa Toka Marope, *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*, Africa Region Human Development Working paper Series No. 84, Human Development Sector, Africa Region, The World Bank, 2005, §1.4, p. 2.

³¹⁵ Ibid. § 1.4, p. 2.

³¹⁶ Ibid. §1.11, p. 4, drawing on N. Westergaard-Nielsen, D. Hanshom, D. Motinga, *Analysis of Namibia’s Labour Market: The Demand Side*. Background Report 02/05/03 of the ESW-P078682, *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*. Windhoek, 2003.

³¹⁷ Ibid. §1.18, p. 6.

³¹⁸ Ibid. §2.17, p. 12.

Education has a positive effect on earnings, according to a report by Tekaligne Godana and Keichi Ogawa³¹⁹, based on a nationally representative sample survey of 2500 individuals aged over 15 and not attending school. Of the sample, 33 per cent were in full-time employment, 7.6 per cent were in part-time employment, and 44.4 per cent were unemployed; 11 per cent were old or disabled, 2.3 per cent were unpaid family workers, and 1.6 per cent students. Of those in employment (882 individuals), 35.3 per cent were in the public sector and 64.7 per cent in the private sector³²⁰.

The report analysed hourly wage rates. It found that:

- urban wage levels were significantly higher than rural wages (median NAD 12.50 against 6.58),
- males earned more than females (median NAD 10.00 against 7.50),
- public sector wages were significantly higher than private sector rates (median NAD 15.10 against 6.79), and
- education had a significant bearing on earnings (see Table 5.19).

As the report says:

People with primary education and junior secondary education have very similar wages while wages are much higher for those with senior secondary, college and university education. Especially, it is noteworthy that the median wage for people with senior secondary education is more than double those of with only junior secondary education. [There is] A real jump in wages between those two levels. The wage jump is also high between senior secondary education and college education.³²¹

Table 5.19: Hourly wages (in NAD) by Educational Level, 2003

	Mean	Median	Std. Dev.	Cases
No schooling	6.26	2.50	9.57	49
Primary education	13.72	5.26	24.61	199
Junior secondary	12.70	6.14	22.03	335
Senior secondary	22.13	13.42	32.28	274
College	26.52	24.31	19.55	99
University/Polytechnic	42.98	27.78	54.63	51

Source: Household Survey (2003), cited in Tekaligne Godana and Keichi Ogawa, The cost and financing of education and training, Report 07/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-PO78682-ESW, Table 7.2.

Westergaard-Nielsen, Hansohm and Motinga drew on this data to show how completion of each educational level impacted wages. In essence, wage levels double when somebody completes senior secondary school, and the same happens when college is completed³²².

³¹⁹ Tekaligne Godana and Keichi Ogawa, The cost and financing of education and training, Report 07/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-PO78682-ESW, Section 7.

³²⁰ Ibid. §7.1.1 and 7.1.2

³²¹ Ibid. §7.1.4.

³²² Niels Westergaard-Nielsen, Dirk Hansohm and Daniel Motinga, Analysis of the Namibian labor market: The demand side, Report No. 02/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-P078682-ESW.

Table 5. 20: Returns to education expressed as an index with no school equal 1

Level of education completed	Wage factor	Median
No schooling	1	2.5
Primary education	2.104	5.26
Junior Secondary	2.456	6.14
Senior Secondary	5.368	13.42
College	9.724	24.31
University/Polytechnic	11.112	27.78

Source: Niels Westergaard-Nielsen, Dirk Hansohm and Daniel Motinga, Analysis of the Namibian labor market: The demand side, Report No. 02/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-P078682-ESW.

Godana and Ogawa's study of rates of return to education was the first of its kind for Namibia. They found that while the overall private rate of return per additional year of schooling was around 11 per cent, this actually masked huge differences arising from the level at which that education occurred.

The returns to primary education and junior secondary education are extremely low (in fact negative for primary education) and statistically highly insignificant. This is indicative of the low quality of education received by those in the labor force today.... The returns to senior secondary education and post-secondary education are extremely high, 28 per cent and 34 per cent respectively. ... Such a dramatic jump in returns to education from junior secondary to senior secondary can hardly be explained by a dramatic difference in productivity between those with junior secondary education and senior secondary education. Perhaps it has to do more with the scarcity premium people with post junior secondary education receive due to the limited access to education beyond grade 10. If that is so it raises an important equity issue where the bulk of education expenditure actually benefits a few select lucky to proceed beyond junior secondary education. If people do not receive any economic benefit from the education they received it can hardly be said that they have benefited from government expenditure on education.³²³

One of the reasons put forward for the poor rate of return on primary education is its poor quality: As Godana and Ogawa conclude, "The [private] returns to education are highly skewed to those with education beyond junior secondary level".³²⁴

As far as the private rates of return are concerned, the same study indicates that although primary and secondary education in Namibia is in principle free, all schools have voluntary development funds to which parents are asked to contribute, the cost of these contributions varying significantly from school to school. In addition, parents meet other costs (e.g. uniforms, books), while attendance at school may well involve a loss in potential earnings.

³²³ Tekaligine Godana and Keichi Ogawa, The cost and financing of education and training, Report 07/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-P078682-ESW, §7.2.9 to 7.2.10

³²⁴ Ibid. §7.1.16

The main social cost of education is the significant government subsidy to education. Godana and Ogawa's calculations and assumptions led them to the following Private Internal Rate of Return (PIRR) and Social Internal Rate of Return (SIRR) on education, by level (Table 5.21)³²⁵. Note that in this table, the Private Rates of Return cited in this table are based on completing a certain level of education, and are not directly comparable with the rates of return mentioned above, which are returns to additional years of education³²⁶.

Table 5.21: Private and Social IRR for different levels of education

	Average annual earnings	Annual private costs of education (NAD)	Total private costs of education	Annual government subsidy per student (NAD)	PIRR %	SIRR %
No formal education	22867	-		-	-	-
Completed primary education	29054	280	11714	2307*	6	5
Completed junior Secondary education	46837	421	29475	2880*	17	16
Completed senior Secondary education	59772	526	47363	2880*	13	12
Post secondary	102900	4500***	64272	23417**	14	10

* Based on operational costs for 2001.

** Average subsidy for UNAM and the Polytechnic.

*** Private costs for post secondary education are estimates based on tuition fees and required expenses for books.

As children not attending primary school help at home in various ways we have assumed that the opportunity cost of attending primary school to be 50 per cent of the earnings of an adult with no education.

Source: Tekalign Godana and Keichi Ogawa, The cost and financing of education and training, Report 07/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-PO78682-ESW.

Godana and Ogawa conclude that "Both the private and social IRR are quite high for all levels of education except for completing primary education". Completing primary education has "a positive impact on wages" with a 6 per cent PIRR. Completing junior secondary level education has a high private and social return. The private rate of return for post-secondary education is low because of the high private cost of attending that level of education³²⁷.

³²⁵ Ibid. §7.3.7

³²⁶ Ibid. §7.3.8

³²⁷ Ibid. §7.3.8

Reviewing the evidence, Marope, Ogawa, Tuijinman and Villet argued that:

The analysis of rates of returns to schooling sheds additional light on the inadequacy of skill supply. The findings show that the private return to primary education is close to zero. The return to junior secondary education is only a few percentage points. The return to senior secondary education is substantial (28 percent) and the return to tertiary education is gigantic (34 percent). These findings are interpreted as follows. Because the primary system fails to build foundation skills such as functional literacy and numeracy and employability skills to a sufficient degree, the formal labour market does not absorb persons with only primary schooling. Hence there is no private return to primary schooling in the wage economy. The population with primary school as highest level of educational attainment is therefore largely dependent on work in agriculture or the shadow economy. The small positive rate of return to completed junior secondary education is an indication that those with this level of schooling are employable but will have low wages on the labour market. In trying to actually realize economic benefits from its investment in human capital, Namibia should focus on the difference between a zero return for completed primary education and a positive rate of return to junior and senior secondary education. The inevitable conclusion is that Namibia needs to expand access to secondary education as rapidly as possible so that all young Namibians are educated at least to this level³²⁸.

³²⁸ Mmantsetsa Marope, Keiichi Ogawa, Albert Tuijnman, and Charmaine Villet, *Adapting the General Education System to Better Support Namibia's Transition to a Knowledge-based Economy*, Report No. 05/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity, EW-P078682-ESW, 5.2.9 and 5.2.10

6 OPEN SCHOOLING IN NAMIBIA: THE NAMIBIAN COLLEGE OF OPEN LEARNING

6.1. Structure of NAMCOL

The Namibian College of Open Learning (NAMCOL) has its headquarters in Katutura, a dormitory suburb a few kilometres north of central Windhoek. The College, whose supreme authority is its Board of Governors, has its main administrative functions located here. These include:

- the Office of the Director (to whom the Research and Evaluation manager currently reports),
- the Programmes and Materials Development Division,
- the Management and Support Services Division,
- and the Finance and Administration Division (see Chart 6.1).

The Programme Materials and Development Division is responsible for the development and revision of subjects offered in the secondary school and professional programmes, desktop publishing, the print shop, audio and radio production, and the despatch of materials to the regions. The Computer Based Learning Centre (CBLC) facilitator reports in here as well. The Management and Support Services Division is responsible for learner support, marketing, the data unit, human resources, and research and evaluation. The Finance and Administration Division covers accounts, IT, logistics and administration. It also manages the bookshop, which sells both NAMCOL and University of Cambridge Press NSSCO materials.

The Board has approved a reorganisation and strengthening of the structure that will create a separate Marketing and Sales Unit within Management and Support Services that will be responsible for marketing and the bookshop.

NAMCOL has four regional offices (Northern, North-Eastern, Central, and Southern). Each of the NAMCOL regions covers a number of political regions:

- Central: Erongo, Kunene and Otjozondjupa
- Northern: Ohangwena, Omusati, Oshana, Oshikoto
- North Eastern: Caprivi and Kavango
- Southern: Hardap, Karas, Khomas and Omaheke

The Northern Region regional office and resource centre at Ongwediva is owned by the College, and one of NAMCOL's two Computer-Based Learning Centres is located there. The Southern Regional Office is located at NAMCOL's head office, the Central Region is located in rented premises and the North Eastern office is located in government buildings, free of rental charge. The College makes use of facilities in schools to deliver many of its services to students. The actual accommodation is free of charge, but the College does pay each school an agreed sum for its use of electricity, telephones and toilets. Heads of Centre are employed on a casual basis and are paid NA \$111.96 an hour. Each Region is divided into a number of Areas, under the management of an Area Co-ordinator. The Co-ordinators are responsible for the enrolment points where students are admitted and the tutorial centres that are in their area. This job is a pivotal one in the success of NAMCOL at the local level. In 2006, the regions collectively established 118 enrolment points and 99 tutorial centres nation-wide.

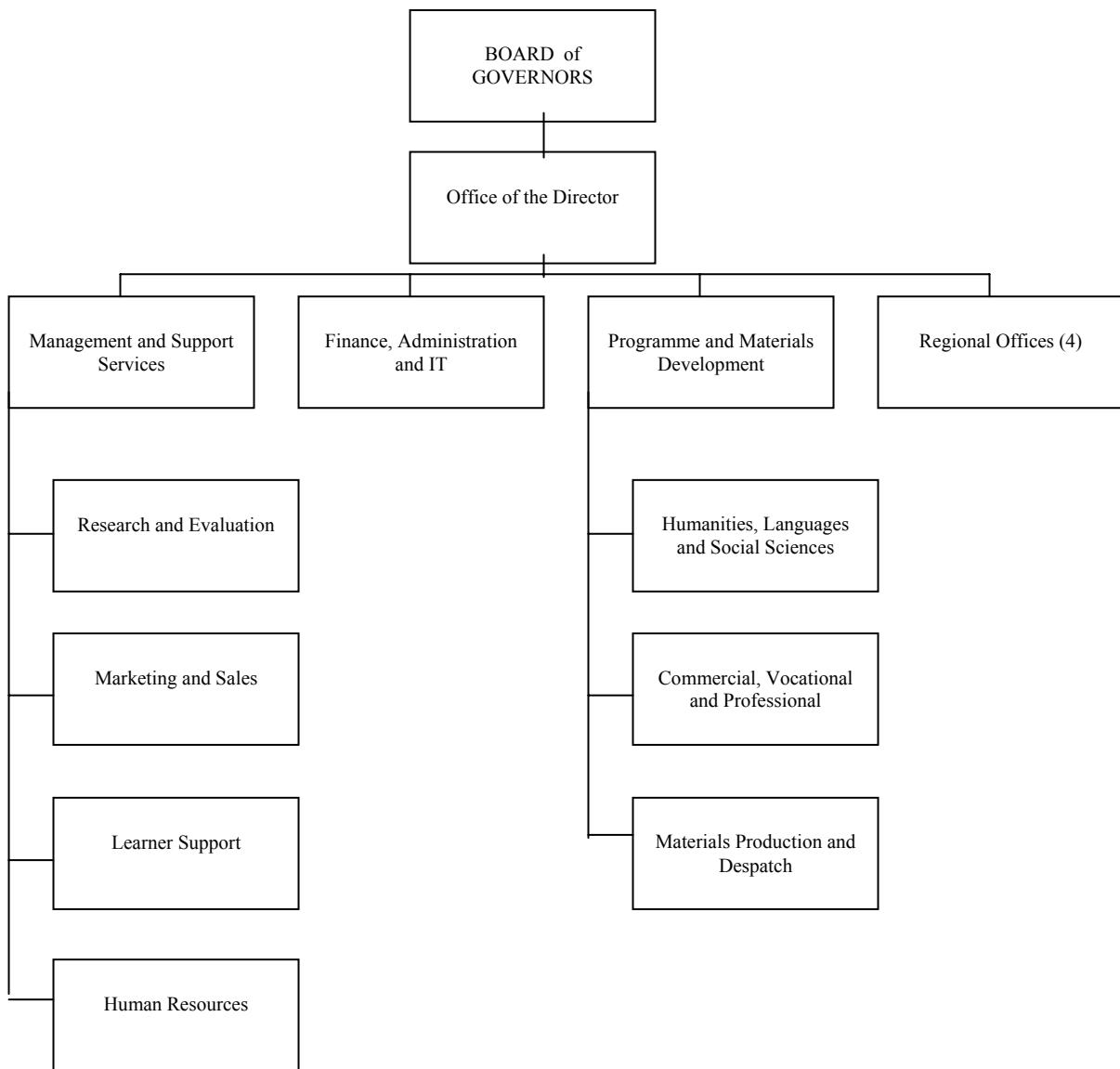


Chart 6.1: NAMCOL's emergent organisational structure

The recent reorganisation and strengthening of NAMCOL will involve the creation of five new full-time positions including a manager for the new Marketing and Sales Unit in Management and Support Services, a Programme Developer for ICT and eLearning, and some additional support posts. Table 6.1 shows the staffing levels in 2005. Table 6.2 shows the number of students per full-time staff – excluding the new positions.

What really distinguishes the College is the relatively small number of full-time core staffing positions relative to the number of students it has and the heavy use of peripheral staff (staff on flexible contracts under which they are paid hourly or for the accomplishment of specific tasks).

Table 6.1: NAMCOL staffing

	FULL-TIME STAFF		PART-TIME STAFF				
	Head Office	Regional Centres	Course writers	Content Editors	Centre Heads	Tutors	Casual Contract
2000			19	10	92	890	
2001			7	12	93	931	
2002	43	22	7	17	89	912	
2003	41	20	8	10	104	922	40
2004	45	20	12	7	110	799	46
2005	48	20	3	8	110	892	49
2006	48	21	10	16	105	1,026	71

Source:
NAMCOL Statistical Digest 2000, 2001 (all Fig 4.2), 2002, 2003, 2004, 2005, 2006 (Figs. 4.1 and 4.2).

Table 6.2: Number of full-time staff per learner

	# part-time secondary school learners	# full-time staff	# part-time secondary school learners per FT staff member
2002	2,5982	65	400
2003	26,483	61	434
2004	24,835	65	382
2005	26,482	68	389
2006	28,090	69	407

6.2 The origins and purpose of NAMCOL

Prior to Namibian Independence (31 March 1990) there were a number of continuing and distance education programmes available to Namibians leading to the Grade 10 Namibia School Certificate (NSC) examination, and these were continued. Among these was the establishment by SWAPO³²⁹ with the help of the Commonwealth Secretariat³³⁰ and the (now defunct) International Extension College (a distance education consultancy and development agency based in the UK)³³¹ of a Namibian Extension Unit³³² operating out of Zambia. Within Namibia, the

³²⁹ SWAPO: The South West Africa People's Organisation. Now a political party, SWAPO, which was formed in 1960, emerged as the dominant liberation movement in the struggle for Namibian independence from South African rule. The movement launched its armed struggle in 1966.

³³⁰ The Commonwealth Secretariat is the administrative arm of the Commonwealth of Nations (established in 1931), a voluntary association of independent states all of which, with the exception of the United Kingdom and Mozambique, were former British colonies.

³³¹ The International Extension Unit was set up in 1971 to provide and advice and support in distance education and open and flexible learning in developing countries. It ceased to be active from 31 March 2006.

Department of National Education provided distance education courses for teacher.³³³ In late 1994, these two initiatives were brought together as the Department of Adult and Non-Formal Education within the then Ministry of Basic Education and Culture³³⁴. At the same time, coincidentally, the national curriculum was reorganised into a two-tier secondary system leading to the Grade 10 Junior Secondary Certificate and the Grade 12 International General Certificate of Secondary Education. These examinations were introduced in 1993/94, and the pre-independence NSC was phased out at the end of 1996. Table 6.3 shows the number of learners taking these non-formal, out-of-school programmes by mode of study during this formative period.

³³² "The Namibian Extension Unit (NEU), a distance education program for Namibian refugees in Zambia and Angola, was established in 1981 and began teaching courses in mid-1982. Its purpose [was] to provide basic education to adult Namibian refugees using the distance education format. The NEU provide[d] courses in study skills, introductory English and basic mathematics; courses in agriculture, child care and nutrition, personal hygiene and community health, and secondary school English are being prepared. NEU distance learning activities [were] carried out in study centres throughout Angola and Zambia, under field supervisors for each country. Part-time tutors [were] employed to help the students in their studies; they [were] assisted by study group leaders--students a few courses ahead who [were] responsible for classroom procedures and helping students with lessons. NEU course materials [were] produced in writers' workshops organized by the Unit. NEU staff and teachers from Namibian Health and Education Centres help[ed] in the writing, and international experts and consultants also participate[d]. The NEU [was] autonomous within the United Nations Institute for Namibia, and [was] overseen by a Board of Project Management. Financial assistance [was] provided by a variety of international sources. [In 1985] Approximately 165 employees work[ed] in the study centres to serve about 2,000 students; both figures [were] expected to rise as more of the target population of 40,000 Namibian refugees with at least four years of primary schooling [were] reached." Source: ERIC:

http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED266290&ERICExtSearch_SearchType_0=eric_accno&accno=ED266290 accessed 2 October 2007. "After 1990, when refugees began returning home, the Namibia Extension Unit was reorganized to provide traditional formal education by means of distance education. Sponsored by the United Nations Fund for Namibia, the Ford Foundation, OXFAM (UK), and the Swedish International Development Agency, the unit now provides practical skills in literacy and basic education, as well as professional education and training for adults who have at least four years of primary education. Instruction is via printed correspondence texts and audiocassettes." Source: *Namibia – Non-Formal Education*, <http://education.stateuniversity.com/pages/1049/Namibia-NONFORMAL-EDUCATION.html>, accessed 7 October 2007.

³³³ This led to the award of the National Education Certificate. The programme was phased out around 1994 – see Erica Shilongo, "Historical Overview of Educational Assessment in Namibia", *Reform Forum* 18 (September 2004), p. 4: Available at <http://www.nied.edu.na/publications/journals/journal18/Article4.doc>, accessed 7 October 2007.

³³⁴ NAMCOL, <http://www.namcol.com.na/History.htm> - accessed 2 October 2007.

Table 6.3: Continuing and distance education provision in Namibia, 1991-1998

	Exam	1991	1992	1993	1994	1995	1996	1997	1998
Distance Education Mode									
Grade 10	JSC				164	393	1021	2002	3020
Standard 10	NSC	~600	260	1,112	832	563	3,334	d/c	
Grade 12	IGCSE						1,197	6,401	6,612
Sub-total		~600	260	1,112	996	956	5,552	8,403	9,632
Face-to-Face Mode									
Grade 10	JSC				1,357	4,406	4,055	4,701	66,484
Standard 10	NSC	5,500 + 5,300		8,390	2,427	1,183	1,226	d/c	
Grade 12	IGCSE							3,496	3,287
Sub-total		5,500 + 5,300		8,390	3,784	5,589	5,281	8,197	10,311
TOTAL		~6,100		5,560	9,502	4,780	6,545	10,833	16,600
									19,943
Note: d/c = discontinued									
Source: NAMCOL, <i>Statistical Digest 1999</i> , Figure 2.2									

Meanwhile, the new government began to reform the educational system. In February 1991, a Core Planning Group, representative of both the public and private sectors, the unions and non-governmental organizations, was set up to examine the potential for distance education in Namibia. The findings of this group were reflected in the *Report of the Commission on Higher Education*, which also endorsed the establishment of a distance education college. In October 1991, the then Ministry of Education (MEC) invited Florida State University to coordinate a consultancy review and to make proposals for distance education in Namibia. The report of this review group, entitled *Taking Education to the People*, also recommended the creation of a semi-autonomous, distance education college, and it provided a plan of action for its establishment.

6.2.1 NAMCOL is established

In 1993, the MEC gained Cabinet approval to establish such an institution. An Interim Development Board was appointed by the Minister in July 1994 to assist in planning the establishment of the College, drafting the necessary legislation and drawing up frameworks for the College's management. The Board and the Minister decided that the new structure would be called the Namibian College of Open Learning (NAMCOL)³³⁵. It was also decided that the new

³³⁵ NAMCOL, <http://www.namcol.com.na/History.htm> - accessed 2 October 2007.

institution would have responsibility not only for distance education programmes, but also for face-to-face components of the Ministry's continuing education programme.

Initially a separate unit was set up within the Ministry with sole responsibility for the functions that were to be outsourced. Thus, in November 1994, the Public Service Commission sanctioned the break-up of the Directorate of Continuing Education into two directorates. The Directorate of Adult Basic Education was tasked with the administration of adult literacy and basic skills development, while face-to-face and distance education programmes were allocated to a new directorate, NAMCOL. Finally, by proclamation of His Excellency, the President, the NAMCOL Act (Act No. 1 of 1997) came into effect on 25 September 1997³³⁶. Under the Act, NAMCOL was established as an autonomous, state-supported institution with responsibility for the programmes previously administered through the Continuing Education Programme of the Ministry of Basic Education and Culture. The Act specified NAMCOL's purpose as being:

“to contribute towards the social and economic development of Namibia by upgrading the educational level of adults and out-of-school youths through programmes of open learning; by devising, developing and offering programmes to address the diverse needs of such adults and out-of-school youths; and by providing opportunities for adults and out-of-school youths to upgrade their professional and vocational skills, as well as their level of general education ...”³³⁷

It would do this by using technologies that would take “education to the people”, and by broadening:

“access to education by establishing and maintaining tutorial centres in the various regions of Namibia for those Namibians who have been deprived of formal education or vocational training or who are too old or for other reasons are unable to engage in conventional school-based education”³³⁸.

NAMCOL began teaching Junior Secondary Certificate (JSC) and International General Certificate of Secondary Education (IGCSE) courses in 1994. NAMCOL's Alternative Secondary Education Programme (ASEP) has always been the mainstay of its activity, although it has over the years introduced a number of professional vocational programmes:

- The two-year distance-taught Certificate in Educational Development (CED) was introduced in 1997.
- The two-year Commonwealth Diploma in Youth in Development (CYP) was offered by NAMCOL in partnership with the Zimbabwean Open University between 2002 and 2004, and then offered on its own from 2005.
- The National Higher Diploma in Adult Basic Education for Training (HDABET) was offered in collaboration with the distance teaching University of South Africa, from 2004.
- The one-year Certificate in Local Government Studies (CLGS) was offered for the first time in 2006.

The number of enrolments on these programmes is relatively small in comparison with the Alternative Secondary Education Programme (Table 6.4).

³³⁶ Frances Ferreira (n.d.) The Namibian College of Open Learning: A Case Study. Mimeo.

³³⁷ Ibid. Section 4 (a).

³³⁸ Ibid. Section 4 (b).

Table 6.4: Number of students enrolled in NAMCOL professional programmes, 2003-2006

	2002	2003	2004	2005	2006
CED students	83	104	86	106	127
CYP students	28	28	28	25	40
HDABET students			61	15	19
CLGS students					93
Total	111	132	175	146	279

Further professional programmes are planned for launch in 2008 (a Certificate in Business Management) and 2009 (a professional qualification in Early Childhood Development).

In addition to its professional programmes, NAMCOL undertakes a number of other quasi-commercial activities that lie outside the scope of this review. It has set up two Computer-Based Learning Centres (CBLCs), one at its headquarters in Windhoek and the other in the north at Ongwediva. The latter was opened in July 2006. Recent developments indicate that the initial “pump-priming” phase when CBLC was being set up has now ended and that the CBLC has become an autonomous, self-sustaining profit centre in its own right.

A proportion of each print run of NAMCOL’s JSC Study Guides are produced for commercial sale through NAMCOL’s bookshops at Windhoek and Ongwediva, through the three other regional offices and through commercial bookshops. In addition, Examination Booklets with past question papers are produced and sold on a purely commercial basis (that is, NAMCOL students have to buy them at cover price along with anyone else). NAMCOL is also the country’s sole distributor of the new Namibia Secondary School Curriculum (NSSCO) Study Guides, which are published by Cambridge University Press. NAMCOL staff undertook some of the adaptation of these guides and sales to individual students in the formal system and to schools have been brisk. The aim is to ensure that the bookshop is a fully self-funding, autonomous profit centre within NAMCOL.

NAMCOL is also currently involved in a significant research programme – the Orphans and Vulnerable Children Project.

6.3 The development of NAMCOL’s pedagogic system

The origins of NAMCOL within the dual mode operations of the Ministerial Directorate meant that in its early years, the College offered its alternative secondary programme through two routes. Those students who opted to take the programme through the distance learning route were provided with printed study materials, undertook a number of assignments that were marked by correspondence tutors and were given an opportunity to attend vacation workshops twice a year where they could have access to more concentrated face-to-face teaching in support of their distance learning. Other students opted to take the alternative secondary programme through afternoon or evening face-to-face classes at one of the tutorial centres NAMCOL ran around the country (of which there were over 80 in 1999). These students were not given the study guides: if they wanted them, they had to purchase them separately. At this stage in the College’s development, not all the subjects available through the face-to-face mode were also available to the distance learners.

In 1999, the College decided to blend these approaches for learners in the Caprivi, Hardap and Karas regions as a pilot project. The learners in these regions (who were classified by the College as distance learners) were given the printed course texts and submitted their assignments for correction by a correspondence tutor. They also had the opportunity to attend the vacation workshops, but in addition they were given on average four hours tuition per week.

In January 2003, the College changed its system again and adopted what it calls the Open Mode of study. However, once again two options were offered to students. In the first, the Contact Open Mode, the students continued to get the course materials and to have their assignments marked by a tutor, and they were also offered face-to-face support. The approach adopted differed from the blended approach tried out in the Caprivi, Hardap and Karas regions in that the amount of face-to-face tuition offered was reduced from four to two hours per week, and the twice-yearly vacation workshops were withdrawn for these students. A second group, the Non-contact Open Mode students, received the course materials, had their assignments marked by a tutor and were offered attendance at the twice-yearly vacation workshops. This accommodates learners who don't have easy access to a study centre for face-to-face tuition.

The overall package now offered to Contact learners in the secondary education programme is:

- A one-day orientation workshop (five hours),
- A full set of the NAMCOL Study Guides and/or textbooks needed to study each subject,
- A copy of NAMCOL's *Good Study Guide*,
- Two hours of face-to-face tuition per week in each subject taken over the 26-week teaching year,
- For learners who cannot attend the weekly tutorials, two vacation workshops per year,
- Three assignments per subject, set nationally but marked by local tutors, and
- Access to self-supervised study halls³³⁹.

Students must make their own arrangements through the Directorate of National Examinations and Assessment to register and pay the fee for examinations.

6.4 NAMCOL's learners³⁴⁰

Table 6.5 provides information on the number of registered learners taking NAMCOL's Alternative Secondary School Programme by level (Grade 10 or JSC, and Grades 11 and 12 or IGCSE) between 1999 and 2006. The table also shows the mode of learning followed by the students and indicates the size of the NAMCOL contribution, relative to the number of students in the formal system. In recent years, NAMCOL's contribution at the junior secondary level has been equivalent to adding some 11 per cent to the formal student numbers at this level, while its contribution at the senior secondary level has been very significant with nearly one in every two places at this level being offered through NAMCOL. It should be noted that most of NAMCOL's students register in order to resit examinations that they cannot resit through the formal system

³³⁹ NAMCOL, *Handbook for Learners 2007*.

³⁴⁰ Information on NAMCOL's learners is based on the information provided in NAMCOL's annual statistical digests, viz. NAMCOL, *Statistical Digest 1999*, Windhoek, NAMCOL, 2000; NAMCOL, *Statistical Digest 2000*, Windhoek, NAMCOL, 2001; NAMCOL, *Statistical Digest 2001*, Windhoek, NAMCOL, 2002; NAMCOL, *Statistical Digest 2002*, Windhoek, NAMCOL, 2003; NAMCOL, *Statistical Digest 2003*, Windhoek, NAMCOL, 2004; NAMCOL, *Statistical Digest 2004*, Windhoek, NAMCOL, 2005; NAMCOL, *Statistical Digest 2005*, Windhoek, NAMCOL, 2006; and the draft *Statistical Digest 2006*, which was due to be published in July 2006.

(see Table 5.15), so most of NAMCOL's places are occupied by ex-formal secondary students who would otherwise be written off as failures.

Table 6.5: Number of NAMCOL learners by level and by mode of study, 1999-2006

NAMCOL DISTANCE MODE						NAMCOL FACE-TO-FACE MODE					
Year	Total	Junior Secondary (JSC)	Senior Secondary (IGCSE)	JSC as % Formal System	IGCSE as % Formal System	Total	Junior Secondary (JSC)	Senior Secondary (IGCSE)	JSC as % Formal System	IGCSE as % Formal System	
1999	10,191	3,509	6,682	0.02	0.02	11,040	7,155	3,885	0.08	0.17	
2000	10,850	3,863	6,987	0.02	0.06	12,352	8,373	3,979	0.08	0.17	
2001	12,277	3,903	8,374	0.04	0.34	12,765	8,506	4,259	0.08	0.17	
2002	15,401	5,488	9,913	0.05	0.38	16,905	11,898	5,007	0.11	0.19	
NAMCOL OPEN LEARNING MODE											
2003	26,460	14,012	12,448	0.12	0.46						
2004	25,115	13,308	11,807	0.11	0.42						
2005	26,701	13,317	13,384	0.11	0.47						
2006	28,990	13,577	15,413	0.11	0.49						

Sources:
NAMCOL Statistical Digest, 1999, 2000, 2001 (frontispiece and Fig. 1.2), 2002, 2003 (Table 1.1), 2004, 2005 (Fig 1.1), 2006, NAMCOL Enrolment Statistics 2006.

Unfortunately we do not know how many subject passes individuals have when they enter NAMCOL. There is a difference in course-load: students who are resitting their JSC exams can take up to six subjects, while first-time students are limited to three subjects. The majority of NAMCOL's students register for a couple of subjects (see Table 6.6). This may indicate that many of them are seeking to improve their scores in just one or two subjects, or it could reflect careful management of their progress by limiting the number of subjects they commit to take. It could also reflect the fact that, given the high level of unemployment among NAMCOL students, they cannot afford to take more than a couple of courses a year. Table 6.7 shows the distribution of students taking from one to seven subjects at JSC and IGCSE levels.

Table 6.6: NAMCOL students: Average number of subject registrations by level, 1999-2006

Year	# subjects taken		# learners		# subjects/learner	
	JSC	IGCSE	JSC	IGCSE	JSE	IGCSE
1999	6,904	12,723	3,905	6,682	1.77	1.90
2000	7,124	13,329	3,863	6,987	1.84	1.91
2001	7,285	16,574	3,903	8,374	1.87	1.98
2002	9,505	19,563	5,488	9,913	1.73	1.97
2003	31,493	25,824	14,012	12,448	2.25	2.07
2004	29,475	24,307	13,308	11,807	2.21	2.06
2005	28,846	26,641	13,317	13,384	2.17	1.99
2006	29,528	27,900	13,577	15,413	2.17	1.81

Sources:
 NAMCOL, Statistical Digest 1999, 2000, 2001, 2002
 (all Fig. 2.5) 2003 and 2004 (Statistical Digest 2004 Figs
 3.3 and 3.4), 2005 (Tables 3.3 and 3.4), 2006, NAMCOL
 Enrolment Statistics, 2006.

Table 6.7: Number of students by subject load, 2004 and 2005

			NAMCOL: Number of subjects taken by students						
		All	1	2	3	4	5	6	7
2004	JSC	12,476	2,125	6,781	3,215	287	41	27	0
	IGCSE	11,821	3,356	4,894	3,215	287	41	27	1
2005	JSC	13,325	2,315	7,027	3,555	350	54	24	0
	IGCSE	13,479	4,166	5,603	3,396	247	40	27	0
2006	JSC	29,528	2,423	6,893	3,854	322	59	33	0
	IGCSE	27,900	5,088	5,922	3,130	302	48	24	0

Source: NAMCOL Statistical Digest, 2004, 2005, 2006 (Figure 2.5).

Table 6.8 shows the number of open learning mode subject registrations at NAMCOL from 2003 to 2006, by Contact and Non-contact modes. Contact students receive access to the weekly tutorials; Non-contact students do not have access to this service but may instead attend a vacation workshop twice a year. As the table shows, a very high proportion of the JSC students (nine out of ten) choose the open learning route that allows them to attend the weekly tutorial sessions. However, at the senior secondary level, a higher proportion of students choose to study without contact sessions (between three and four out of ten).

Table 6.8: NAMCOL's subject enrolments, by open learning mode

Year	Total	JSC (Grade 10)					IGCSE (Grade 12)				
		JSC Total	Contact	% Contact	Non-contact	% Non-contact	IGCSE Total	Contact	% Contact	Non-contact	% Non-contact
2003	57,317	31,493	28,315	0.90	3,178	0.10	25,824	14,423	0.56	11,401	0.44
2004	54,721	29,475	26,319	0.89	3,156	0.11	24,307	14,534	0.60	9,773	0.40
2005	55,965	28,848	25,716	0.89	3,132	0.11	26,640	17,229	0.65	9,411	0.35
2006	58,891	29,528	26,498	0.90	3,030	0.10	27,900	18,971	0.68	8,929	0.32

Sources: NAMCOL Statistical Digest, 2003 (Table 2.3), 2004, 2005, 2006 (Appendix, Table 1).

Table 6.9 shows the proportion of NAMCOL students who are female. Comparison of this table with Table 5.9, which shows the position in the formal system, makes it clear that NAMCOL has proportionately more female students studying with it than does the formal system. Between six and seven out of every 10 students are female compared to the roughly equal division between male and female students in the formal system.

Table 6.9: Proportion of NAMCOL students who are female

Year	Total	Junior Secondary (JSC)	Senior Secondary (IGCSE)
1999	0.69		0.69
2000	0.71		0.71
2001	0.68		0.68
2002	0.68	0.66	0.69
2003	0.67	0.66	0.68
2004	0.66	0.65	0.68
2005	0.65	0.64	0.67
2006	0.65	0.63	0.66
		NAMCOL Statistical Digest, 1999, 2000, 2001 (all frontispiece and Fig. 1.2), 2002, 2003 (Table 1.1), 2004, 2005 Sources: 2006 (Fig 1.1).	

Although there are older students in the formal system, relative to the age at which one normally expect them to be for their grade (see Table 5.12), NAMCOL's students are generally much older than the students in the formal system (Table 6.10). In 2005, roughly one in two of NAMCOL's students was aged between 20 and 24, and roughly one in three was between 16 and 19 years old. There were also a significant number between the ages of 25 and 34.

Table 6.10: Age of NAMCOL students

Age	n =	<16	16-17	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+
1999	19082	0.00*	0.02	0.15	0.53	0.17	0.06	0.03	0.01	0.01	0.00*	0.00*	0.0
2000	20466	0.00*	0.03	0.18	0.52	0.16	0.07	0.03	0.01	0.01	0.00*	0.00*	0.0
2001	22419	0.00*	0.03	0.19	0.51	0.16	0.05	0.03	0.01	0.00*	0.00*	0.00*	0.00*
2002	27863	0.00*	0.04	0.21	0.51	0.15	0.05	0.02	0.01	0.00*	0.00*	0.00*	0.00*
2003	26512	0.00*	0.01	0.14	0.57	0.18	0.06	0.02	0.01	0.00*	0.00*	0.00*	0.00*
2004	25269	0.00*	0.01	0.16	0.58	0.16	0.05	0.02	0.01	0.00*	0.00*	0.00*	0.00*
2005	26815	0.00*	0.05	0.26	0.50	0.12	0.04	0.02	0.01	0.00*	0.00*	0.00*	0.00*
2006	28317	0.00*	0.05	0.25	0.49	0.13	0.05	0.02	0.01	0.00*	0.00*	0.00*	0.00*

* some learners in this age category, but statistically insignificant

Source:

NAMCOL, Statistical Digest 1999, 2000, 2001, 2002 (Fig 1.4), 2003 (Table 1.2), 2004, 2005 (Table 1.1).

Labour market data shows the key importance of education with regards to employment. Table 6.11 shows the percentage of all NAMCOL's students (including professional programme students) not doing paid work. What is significant here is that very few of NAMCOL's students are in paid work.

Table 6.11: Percentage of NAMCOL students not doing any paid work

Year	Number not doing paid work	As per cent of all NAMCOL learners	JSC not working	IGCSE not working
1999	18,062	94.6		
2000	18,410	90.0		
2001	29,665	92.0		
2002	25,982	93.2		
2003	26,483	99.7		
2004	24,835	98.2		
2005	26,482	98.6		
2006	28,119	99.0	99.0	99.0

Note: Some learners may report unemployment in order to obtain financial help.

Source: NAMCOL Statistical Digest 1999 (p. 8), 2000, 2001, 2002, 2003 (p. 7); 2004 (p. 5), 2005 (p. 6), 2007 (NAMCOL, Enrolment Statistics 2006).

6.5 NAMCOL's curriculum

The curriculum of the Alternative³⁴¹ Secondary Education Programme (ASEP) offered through NAMCOL conforms to the requirements of the Ministry of Education and prepares NAMCOL's learners in most cases for the same public examinations as those taken by secondary students in the formal educational system. The exceptions to this are the language courses at the JSC level where, instead of the focus on language and language skills, and hence on the testing of oral skills, the focus is on literature and hence on reading and writing skills. As a result, NAMCOL's students do not sit an oral examination at the JSC level. At the NSSCO level, the language examinations of full- and part-time students are the same. There are also some differences in the JSC Accounting examination.

At the Junior Secondary Certificate (JSC) level, NAMCOL offers only the final year curriculum (year 10) of the JSC three-year curriculum (Grades 8 – 10). Students entering NAMCOL are required to have successfully completed the JSC at year 9. In the formal system, students take the JSC in a number of subjects – generally nine – but their overall JSC points grade will be judged on their performance in their best six subjects. NAMCOL students who have failed to obtain a sufficiently high grade in the formal system or within NAMCOL and who are seeking to resit the examinations are allowed to resit up to six subjects. Students who are taking the JSC for the first time through NAMCOL are allowed to study just three subjects each year. As Table 6.6 shows, NAMCOL's JSC students are enrolled in an average of 2.17 subjects each in 2005 and 2006, while IGCSE students took fewer than two subjects a year. Table 6.7 above shows the distribution of subject loads taken by NAMCOL students in 2004 and 2005.

In 2006, the curriculum reformed at the senior secondary level: the International General Certificate of Secondary Education (IGCSE) and Higher International General Certificate of Secondary Education (HIGCSE) were replaced by the Namibia Senior Secondary Curriculum (NSSC) which covers the final two years of schooling (years 11 and 12), and is offered at two levels – ordinary (NSSCO) and higher (NSSCH).

In the regular full-time schooling system, year 11 of the new NSSC curriculum was introduced in 2006, and year 12 in 2007. NAMCOL introduced the new NSSC curriculum only in 2007. This is because, whereas in the full-time school system, the curriculum of each subject is taught over two years, at NAMCOL the full two-year curriculum is taught in a single calendar year. Misleadingly (and the comment applies as much to the IGCSE as the NSSCO curriculum), NAMCOL indicates in its prospectus that it offers year 12, on the grounds that at the end of the year its students will have completed the courses to this level. In fact, the students will have completed years 11 and 12 in the subjects they take. It would therefore be more accurate to describe NAMCOL's one-year courses as covering the combined years 11 and 12 curriculum (two academic years in one calendar year system). However, whereas in the full-time formal system students study six subjects at the same time, in NAMCOL they are allowed to take only three subjects a year unless they are resitting the examination, in which case they can take up to six subjects. Thus the time

³⁴¹ "Alternative" in the sense that it is offered in an alternative (distance education) mode to the classroom-based face-to-face regular school system, rather than in the more usual sense of "alternative" as an alternative adult-focused school curriculum. As a term "alternative" is a slippery concept because what is *alternative* in one jurisdiction is not so in another.

taken to complete the NSSCO curriculum in six subjects is the same in both NAMCOL and the regular schools³⁴².

In 2007, NAMCOL offered the following subjects at the JSC level:

- Accounting,
- Afrikaans as a first language,
- Afrikaans as a second language,
- Agriculture,
- Business Management,
- English as a second language,
- Geography,
- History,
- Life Science,
- Mathematics,
- Oshikwanyama as a first language,
- Oshindonga as a first language,
- Otijherero as a first language,
- Physical Science,
- Rukwangali as a first language,
- Rumanyo as a first language,
- Silozi as a first language, and
- Thimbukushu as a first language³⁴³.

The new Accounting and Mathematics syllabuses will be phased in over the next three years. NAMCOL will therefore only introduce its new materials in 2009.

At the NSSCO level, NAMCOL offered the following subjects in 2007:

- Accounting,
- Afrikaans as a first language,
- Afrikaans as a second language,
- Agriculture,
- Biology,
- Business Studies,
- Development Studies,
- Economics,
- English as a second language,
- Geography,
- History,
- Oshikwanyama as a first language,
- Oshindonga as a first language,
- Otijherero as a first language,
- Mathematics,

³⁴² Resit NSSCO students will be allowed to resit six subjects at a time – but this regulation will not become operative until 2008.

³⁴³ NAMCOL, *Handbook for Learners 2007*, Windhoek, NAMCOL.

- Physical Science,
- Rukwangali as a first language,
- Rumanyo as a first language,
- Silozi as a first language, and
- Thimbukushu as a first language³⁴⁴.

6.6 Course materials development, production and distribution

Whenever a subject is to be introduced, a course specification is drawn up by the Programme Developers in NAMCOL's Programmes and Materials Development (PMD) Division. The specification indicates among other things the structure of the course, its assessment strategy, its tutorial strategy, the likely contributors to the course (developer, writer(s), instructional designer, content editor, language editor, secretary, Desk Top Publishing [DTP] Technician), any special printing needs and any sources of external funding. The course is then costed and the course proposal forwarded for approval by NAMCOL's Board.

Once a course specification has been approved by the Board, the PMD Division proceeds to formally recruit (through the Human Resources Unit) course writers, arrange for contracts to be issued, and where necessary, train any of the writers who have not worked in distance education before. Writers may work alone or in a team. Writers are paid a fee of NA \$1,518 for a self-contained study guide of 23-30 pages, and NA \$759.50 for a wrap-around guide to a textbook – these latter being 5 to 10 pages in length.

The development and production team include:

- the Programme Developers within PMD (who act as instructional designers),
- the contracted course writers and content and language editors,
- contracted illustrators,
- typists,
- DTP Technicians,
- the Materials Production Manager, and
- the Programme Manager.

Materials are produced to a production schedule and writers are penalised if they hand material in late (5 per cent of the fee for being 1 to 10 days late, 15 per cent for being 11 to 30 days late, and 30 per cent if they are over 31 days late). Writers who revise a self-contained study guide are paid NA \$1,012 for work involving a revision of 60 per cent or more of the material, and lesser amounts for lesser revisions (NA \$759 for revisions of from 20 to 59 per cent; NA \$352 for revisions of under 20 per cent). A similar sliding scale at 50 per cent of these rates applies to those revising wrap-around textbook guides.

Writers also produce the initial (first year of presentation) set of Tutor-Marked Assignments at this stage, together with marking keys, and also the Self-Marked Assignments together with model answers that students can use to check on their understanding. (Assignments are revised each year, and subject moderators prepare the assignments used in the second and subsequent years of the course annually). In conjunction with the Course Developer, writers also prepare the first Tutorial Letter which is designed to give learners information about a course. Assignment writers are paid NA \$468 for a set of three JSC course assignments, and NA \$806 for a set of

³⁴⁴ NAMCOL, *Handbook for Learners 2007*, Windhoek, NAMCOL

three NSSCO assignments. The Course Developer, assisted by writers, also prepares the Tutor Notes for the course.

The various steps in the production process are defined in the *House Style Manual 2006*. Content and language editors are brought in and paid at a rate of NA \$22 per A4 page edited; proofreaders get NA \$5.50 per page. Assignments are also edited (NA \$15 per set) and proofread (NA \$5 per set). Typing support is also brought in at NA \$165 per set of assignments and tutorial letters. Much of the development and production work is thus outsourced to peripheral staff, thus avoiding the cost associated with hiring core members of academic and production staff.

The physical separation of teachers from students means that NAMCOL's courses are delivered through a range of media coupled with some face-to-face teaching. The prime teaching medium is print. All the Junior Secondary School Certificate (JSC) subjects, with the exception of the languages and Accountancy, are based on self-contained study guides. With the exception of Namibian language subjects, the NSSCO subjects are based around study guides that have been developed by NAMCOL in conjunction with Cambridge University Press. NAMCOL buys these study guides at a discount. Because it would not have been economically viable to develop study guides in Namibian languages, for these subjects NAMCOL uses textbooks developed by local Namibian publishers.

In addition to print, NAMCOL uses audio, delivered through radio and or via audio-cassettes. Audio materials are recorded in NAMCOL's audio studio. Audiocassettes are used in the Grade 10 and Grade 12 English courses (there are two tapes per course), in the Grade 12 Maths course (1 tape) and the Grade 10 Maths course (1 tape).

Radio programmes are used to supplement the course materials in a number of courses. These are transmitted by the Namibian Broadcasting Corporation (NBC). Programmes are 10 minutes long and are broadcast on Mondays, Wednesdays and Fridays free of charge. Individual Course Developers choose the five or six programmes that they will make each year across the two or three subjects for which they are responsible. The radio programmes thus focus on different topics within subjects each year. Since NBC makes just three 10-minute slots available each week for educational use, and since NAMCOL has to share the available slots with other educational providers, the level of radio use is actually very modest.

Digital materials have been developed as a pilot programme to supplement the JSC and NSSCO Physical Sciences and Mathematics courses, in collaboration and funded by UNESCO. In addition, materials for the English Grade 10 and Grade 12 are being developed by NAMCOL. These materials are perceived to be an additional support for students in remote areas.

Once developed, the course materials go into production – passing through typists (few authors submit electronic copy or even typed manuscripts), desktop publishing (DTP) (cover design, page layout), and then proofreading, before being peer reviewed. Following any further changes the materials are signed off and go for printing. Printing is contracted out either under tender arrangements or following a quotation. Although most printing is done externally, there is a small internal printing unit that does some of the smaller jobs in-house. NAMCOL has already supported some hearing impaired learners (where the cost of sign language interpreters was paid by another agency), and it is currently discussing the production of Braille versions of its materials.

Material coming back from the printers is checked for quality on receipt in the warehouse. In the warehouse, materials are pre-packaged as packs for each course. Each student pack contains study guides, tutorial letter, assignments and blank paper for use by learners. The assignments are revised each year. Where textbooks are used, these are also included in the packs.

These packs are sent to the regions. The number sent correspond to the regional estimates of the number of students they will enrol on each course, as agreed by the College's authorities. Tight control is maintained on stock levels through a Materials Reconciliation system that reconciles packs despatched to regions, enrolments and unused packs returned. Regions have to account for discrepancies. The materials are sent out to the regions prior to the opening of admissions, and regions hand out the appropriate packs of course materials to the students at the Enrolment point following completion of the enrolment formalities. Students will also receive generic materials such as the *Good Study Guide* at this point.

Students can also purchase NAMCOL's Examination Booklets. For each subject examination covered, these booklets provide them with past questions and advice on how to tackle the different kinds of questions asked. These booklets are priced of NA \$40. Nine guides have been prepared at the JSC level and eleven guides based on the IGCSE curriculum, while guides to the new NSSCO examinations will be prepared from 2008 on, by which time the first cohort of students will have sat the new examinations.

6.7 Learner admission, teaching, assessment and support

The National Examinations, Assessment and Certification Board of Namibia lays down requirements for registration to sit the Grade 10 (JSC) and Grade 12 (NSSCO) examinations. Students have to satisfy these requirements – not least because both NAMCOL's courses and the examinations are heavily subsidised by the Government and NAMCOL will not therefore admit students who will not be eligible to sit the examinations.

In 2006, NAMCOL enrolled students at 118 enrolment points. The number of these points fluctuates each year. Enrolment takes place from January to March. At these enrolment centres, the Enrolment Officer, assisted by one or even two Assistant Enrolment Officers, completes an enrolment form and, if students change their minds at a later date, a Change of Details Form. These are optically readable forms. Forms are only completed if the student has paid the registration fee and appropriate course fees (either in cash or by a postal or money order). All payments are receipted. It is at this stage too that the course packs of materials are given to the student. Cash is banked daily.

Enrolment Officers are only allowed to accept forms up to the strict quota limits (see below) that have been set for each subject at each enrolment centre. Completed forms are sent to NAMCOL's headquarters. At the end of the enrolment period, the Enrolment Officers claim a flat fee of NA \$500 plus a per capita fee of NA \$5 for each enrolment form they have correctly completed. NAMCOL has a record of the number of enrolment forms that have been returned because of errors in completion.

Because NAMCOL is seen as an "open" college, it is sometimes thought that enrolment is open to all comers provided that they satisfy the registration regulations laid down by the National Examinations, Assessment and Certification Board of Namibia and the College. This is not so. The amount by which the Government subsidises NAMCOL is based on the number of subject enrolments in the previous year, so that were NAMCOL to suddenly increase enrolments, a one-

year funding gap would emerge. During that time, the College would need to fund out of its own resources all the flexible costs (e.g. cost of materials given to students, additional costs of face-to-face teaching incurred if the number of class groups expanded and costs of marking assignments) that the additional students give rise to, together with any other costs there might be (e.g. additional clerks to handle student fees).

NAMCOL would need to know that it could meet this additional one-year cost from its existing revenue base. In addition, the volume of stocks of materials available may constrain NAMCOL from taking additional students in a particular year. NAMCOL therefore sets rigorous subject-by-subject quotas on a regional basis, and regional managers have to adhere to these quotas strictly.

ASE students pay a once-off registration fee of, in 2007, NA \$30 and a course fee of NA \$100 for each JSC subject that they take, or NA \$160 for each NSSCO subject that they take. Students who cancel or change their course registrations pay an administrative charge equivalent to 20 per cent of the course fee. Registration fees are not refundable³⁴⁵. In addition, students will pay examination fees to the Directorate of National Examinations and Assessment of, at 2007 rates, NA \$27 per subject (first-time takers) or NA \$38 (resits) per subject at the JSC level, and NA \$75 per subject (first-time takers) or NA \$105 (resits) at the NSSCO level.)

6.7.1 Regional structure

Regions are divided into Areas under the management of an Area Co-ordinator. In the Northern Region, there are four Area Co-ordinators. At the end of the Enrolment period, the Area Co-ordinators plan tuition. If the number of students enrolled at a particular Enrolment Centre is not enough to justify offering tuition there, then the Enrolment Centre is not confirmed as a Tutorial Centre. If there are at least three groups of 30 students, then the Enrolment Centre becomes a Tutorial Centre.

Most Enrolment Centres do become Tutorial Centres. In the Northern Region in 2006, only two failed to make the transition. In those Centres where the transition occurs, the Enrolment Officer almost always becomes the Head of Centre. Formally, the Director of NAMCOL on recommendation of the Regional Manager appoints the Heads of Centre.

Students who enrol at an Enrolment Centre that does not become a Tutorial Centre may still be asked to hand their assignments to the assignment coordinator at the Centre. So far as tuition goes, they can either go to another Centre, or they can opt to become Non-contact learners. As Non-contact learners, they become eligible to attend the five-day Vacation Workshops that are held in the first week of the two school holidays.

All students are offered a one-day (five-hour) orientation workshop on commencement of their studies. This first Orientation Session is a key date to which learners, tutors, parents, and local dignitaries are invited. At this session, learners meet their tutors, get their study calendars and are told when the public examinations will be held.

In 2006, tuition took place at 99 Centres. Each year, a number of communities approach the Regional Managers asking NAMCOL to adopt their school as a NAMCOL Centre. Whether this happens depends on demand and also on how near the community is to other existing centres. In the Northern Region, a distance of 15-20 kms can be a considerable problem for students when it

³⁴⁵ NAMCOL, *Handbook for Learners 2007*.

comes to travel, but a new centre would not normally be set up if there were an existing centre within 10 kms.

Tutorial classes commence in March and are offered during the normal school term. During June and July, the Area Co-ordinators are on the road constantly visiting Tutorial Centres where they assess the work of the Heads of Centre and also the work of the tutors. They sit in on tutorials and, after an observation session, will sit with the tutor and give feedback on their performance. They will also take the opportunity to discuss any monitoring reports tutors may have received on their assignment marking. Most Area Co-coordinators need to stay away from home when on the road. During these visits, they may meet with the Centre Management Committee, which is rather similar to a School Board. There are also other activities that may demand their attention – for example, the HIV/AIDS clubs, Centre sports events and the encouragement of student Self-Study Groups.

6.7.2 Tutor recruitment and training

Tutor recruitment takes place from December to February. The tutors are drawn from teachers in the regular formal system – generally from the school in which the Tutorial Centre is based. Although tutors are on an annual contract, once a good tutor is “in the system”, they are retained by the Area Co-ordinators. Vacancies and the places of poor tutors who have not been re-appointed are filled from the recruits that come forward. The Regional Managers, advised by Heads of Centre, appoint the tutors.

December to February is also the period when the Area Co-ordinators train tutors, Enrolment Officers and Heads of Centres. Overall, they spend eight weekends per year training tutors. As subject experts, tutors do not need to be trained in content, but they do need familiarisation with distance education practice and NAMCOL’s procedures. (Also, from October to March, Area Co-ordinators are marketing NAMCOL and its services to communities.)

Tutors are paid NA \$74.18 per hour for tuition, and NA \$13.20 per assignment marked (2007 rates). The tutors employed by NAMCOL appear to be making extensive use of NAMCOL’s materials – the Examination Booklets and the Study Guides – in their formal teaching. Given the undoubtedly quality of these materials, there is a wholly hidden cost-benefit to the education system arising from this transfer of skill from NAMCOL into the formal school system.

Students’ enrolment forms are scanned, and it is at this point that the Data Capturing Clerks in the Data Unit allocate students to a tutor. A tutor allocation list is then generated automatically. Regional Centres use these lists to timetable classes. Students are offered two hours face-to-face tuition per week in each subject they are taking over the 26-week academic term. They thus get 52 hours tuition per subject.

Tutorial groups are only offered in centres where there is a minimum of 15 students wanting to take the subject. The budget is based on one tutorial group for every 30 students. A second group is only established where there are more than 60 students in a centre taking the subject. This means that some tutors have large groups of 50-60 students. Pre-agreed quotas thus essentially drive the number of tutors appointed for subjects by the Centre.

Students who are unable to attend the regular tutorials (Non-contact students) are given the opportunity to attend two vacation workshops per year. The vacation workshops are offered at a limited number of centres, and students are responsible for any travel and accommodation costs

that they incur in attending the workshops. The workshops take place in the first week of each holiday. During the week, the Non-contact students get 10 hours tuition in each subject. The final vacation workshop of the academic year focuses on examination techniques and questions. Area Co-ordinators monitor these workshops. Heads of Centres who administer these workshops are paid at a rate of NA \$111.96 an hour.

6.7.3 *Student assignments*

Students are expected to do three assignments per course, due roughly at the end of May, end of June and end of July. Students studying languages at the NSSCO level have to do oral assignments. Interlocutors who carry out the oral assessment are paid NA \$15 per oral assessment. The first time the course is offered, the assignments will have been set by the course writer(s); thereafter, the assignments are set by part-time moderators who are experienced and qualified teachers working in the formal system. New assignment questions are prepared each year. Moderators, who oversee the planning of the course calendar, develop assignments and check on the quality of tutor marking and the teaching comments made on assignment scripts. They are paid NA \$1,055 for writing a set of three assignments for each course, producing a tutorial letter (usually two to three pages long), drafting or revising an existing Study Programme (course calendar) and writing reports to tutors on the quality of their marking and their comments on students' written work.

Students hand their assignments in to their tutor (or the Head of the Centre). There are arrangements for students who are unable for any reason to attend the tutorials (Non- contact students) to get their assignments to a marker. Assignments have to be submitted by the due date. Late assignments are not accepted. Assignments are marked by the subject tutors at the student's centre and then handed into the Head of Centre who arranges for them to be sent to the Regional Office in bags that records on an external control sheet how many assignments there are, for which subject and corrected by which tutor.

At the Regional Office, the Area Co-ordinators open the sealed bags with the assignments, check that the number inside tallies with the accompanying control sheet that records the names of the tutor's students, which ones submitted assignments and that the grade awarded is recorded properly. The Area Co-ordinators copy the tutor's report form as a fail-safe record against loss.

The Regional Office then sends assignments off to the Assignment Room at Headquarters in Windhoek, which captures the information from the assignment cover. The original assignments are passed to the Data Centre where the clerks record the marks from the original assignment, print out a new mark list, and generate a list of assignments that will be moderated. At this stage, the moderators undertake a final check that the marks input by the Data Centre accord with the marks given by the tutor. Throughout this process, there is a rigorous checking mechanism to keep track of assignments and ensure that the grades are recorded correctly. As a failsafe mechanism, students can ask for their records to be interrogated to ensure that all their assignments have been entered. Staff in the Data Centre arrange for marked assignments to be sent back to the Centres as soon as the marks have been recorded.

Meanwhile the selected sample of assignments to be moderated are photocopied and passed to a moderator. Generally 10 per cent of scripts are moderated, but in subjects where very few assignments are generated, a higher proportion of papers will be moderated in order to provide moderators with sufficient work to generate a reasonable income and make the task financially worthwhile. The purpose of moderation is to ensure that the work has been corrected and marked,

and that marking standards are consistent. Moderators are paid NA \$16.50 per assignment moderated. They are penalised 15 per cent of the payment if their moderation is more than seven calendar days after receipt of the assignment, and 30 per cent if it is more than 11 days after receipt.

The original assignments together with a copy of the tutor's control sheet are sent back to the tutor from whom the student can reclaim them. The assignment turn round time is 21 days, which is comparable with the best international standards in paper-based distance education systems. (Electronic systems such as those operated by the University of Maryland University College can achieve better return rates.)

Assignment completion rates are clearly crucial to cost. At the JSC level, the assignments are compulsory (since there is an element of continuous assessment). In 2006, about 95 per cent of the first assignments on a course are submitted. This drops to 88-90 per cent for Assignment 3. At the IGCSE level, most of the first assignments are submitted, but perhaps only 60-65 per cent of the second and third assignments are. NAMCOL has accurate statistics on assignment completion rates by course.

6.7.4 A higher drop-out rate

One of the problems faced by distance educators is the fact that in general drop-out is higher in distance systems than in traditional face-to-face education. Studies have indicated that there are a number of causes for this, including:

- the motivation of adult students to continue studying in the face of family and work-related pressures,
- the interest that adult learners have in taking an examination as opposed to "merely" studying a course,
- the inherent difficulty faced by learners who are isolated home study students,
- the fact that some students find that either the method of study (distance education) or the particular course (curriculum/content) they are taking is not for them, the difficulty in finding time to study, and
- the fact that in many cases the cost of study is too great.

Table 6.12 shows the level of drop-out experienced by NAMCOL JSC learners in the period 1999 to 2005. As explained earlier, NAMCOL's teaching system changed from 2003. The figures for 1999 to 2002 distinguish between those NAMCOL students who studied the JSC at a distance and those who studies in face-to-face. In 1999, there was some confusion when students came to register with the DNEA to take the examination and some of NAMCOL's distance students appear to have registered as NAMCOL face-to-face students. However, if we take the data for 2000, we can see that 6,124 students registered with NAMCOL as distance students, and that just seven in ten of these students (72.6 per cent) registered with the DNEA to sit the examination, and 27.4 per cent (the first recorded sign of drop-out) failed to do this. A further 19.4 per cent had an incomplete status in the examination (perhaps because they failed to turn up on the day for an examination, because an assignment mark is missing or because a learner carried forward a component of the course from the formal system but failed to tell the DNEA that he/she was doing this). In 2000, the total drop-out and incompletes was 46.8 per cent (column 7). Some of the incomplete statuses will later be resolved in the favour of the student.

If we compare this with the performance of NAMCOL's face-to-face learners who were in effect following an alternative afternoon and evening face-to-face programme outside of the official formal system, we can see that a higher proportion of these students enrolled with NAMCOL registered to sit the examination (91.9 per cent), and that the overall drop-out plus incompletes rate by the time it came to sit the examination was much lower (16.8 per cent compared with 46.8 per cent in the distance programme).

From 2003 NAMCOL no longer taught students exclusively face-to-face, but instead adopted a blended open learning approach in which most students studied using a mix of materials-based learning and face-to-face support (the Contact students – see Table 6.12). These students had a lower drop-out rate than did the pure distance students of the earlier period, with just one in five or less of them dropping out or failing to complete. Also, performance seems to have improved in the years 2003, 2004 and 2005 (20.7, 18.6, and 16.6 per cent respectively).

Table 6.12: Drop-out among NAMCOL JSC learners, 1999-2005

	DISTANCE EDUCATION					FACE-TO-FACE				
	NAMCOL subject enrolments at JSC level	DNEA subject entries ()	NAMCOL learners who did not enter exam (%) (100% - col 3)	Incomplete Status in exam (%)	Total drop-out & incomplete (%) (Col 4 + 5)	NAMCOL subject enrolments: n =	DNEA subject entries (%)	NAMCOL learners who did not enter exam (%)	Incomplete Status in exam (%) (100% - col 8)	Total drop-out & incomplete (%) (Col 9 + 10)
Column #	2	3	4	5	6	7	8	9	10	11
1999	6,904	48.6	51.4	7.4	58.6	16,965	105.5	(5.5)*	6.4	0.9
2000	7,124	72.6	27.4	19.4	46.8	19,328	91.9	8.1	8.7	16.8
2001	7,285	85.2	14.8	17.8	32.6	19,795	95.6	4.1	9.1	13.2
2002	9,505	76.7	24.5	17.9	41.2	27,194	87.7	12.4	9.1	21.4
OPEN LEARNERS										
2003	31,493	86.7	13.3	7.3	20.7					
2004	29,475	87.8	12.2	7.2	18.6					
2005	28,846	89.5	10.5	6.1	16.6					

* Some distance candidates appeared to register as face-to-face candidates

Source: NAMCOL Statistical Digest 1999, 2000, 2001, 2002 (all Fig. 3.10), 2003 and 2004 (2004 Statistics Table 3.3), 2005 (Table 3.3).

Table 6.13 shows the performance for the IGCSE students in the period 2003 to 2005. Here (as column 7 shows) the trend in performance has been more erratic, but overall fewer than one in five of these students dropped out between registration with NAMCOL and the sitting of the examination through the DNEA.

Table 6.13: Drop-out among NAMCOL IGCSE learners, 2003-2005

OPEN LEARNERS					
NAMCOL subject enrolments at IGCSE level	DNEA subject entries, May/June and Oct/ Nov (%)	NAMCOL learners who did not enter exam (%) (100% - col 3)	Incomplete Status in exam (%)	Total drop-out & incomplete (%) (Col 4 + 5)	
Column	2	3	4	5	6
2003	25,824	98.7	1.3	13.2	14.5
2004	24,307	88.3	6.2	10.6	22.4
2005	26,641	91.0	9.0	8.1	17.1

Source: NAMCOL Statistical Digest 2004, 2005 (Table 3.4).

In respect of drop-out during the course, NAMCOL's performance is very good by distance education standards. The statistics on examination success must remain provisional, given the unresolved position of the "incompletes". But even given this, it is when we get to the examinations that performance is more disappointing.

6.8 Examinations and comparative performance

NAMCOL's ASEP students are responsible for enrolling themselves in the public JSC and IGCSE examinations through the Directorate of National Examinations and Assessment (DNEA). Examinations therefore represent a nil cost in this programme. The examinations at the JSC level take place in October/November. However, IGCSE candidates have been able to opt to sit the examinations early, in May/June, or later in October/November, and a proportion of candidates (currently about 10 per cent) do this (see Table 6.14).

Table 6.14: IGCSE Candidates, 1998-2005, by choice of examination sitting

	Part-Time IGCSE Subject Entries			as % of total	
	Oct/Nov	May/June	Total	Oct/Nov	May/June
1998	12,973	2,911	15,884	0.82	0.18
1999	15,337	4,065	19,402	0.79	0.21
2000	17,571	2,717	20,288	0.87	0.13
2001	22,757	2,438	25,195	0.90	0.10
2002	24,408	2,868	27,276	0.89	0.11
2003	22,752	2,748	25,500	0.89	0.11
2004	21,765	3,085	24,850	0.88	0.12
2005	24,814	3,692	28,506	0.87	0.13

Source: NAMCOL Statistic Digest, 1999 (Fig. 3.9), 2000 (Fig. 3.6), 2002 (Tables 3.6, 3.9), 2005 (Tables IV and V).

When IGCSE was first introduced, the results were published by Cambridge International Examinations. Their figures included a small number of candidates studying the IGCSE part-time at the Windhoek International School and at St. Paul's College³⁴⁶. So although it was a reasonable assumption that the published results reflected the performance of NAMCOL students who made up the bulk of the candidates for examination, firm conclusions about the performance of NAMCOL students had to be subject to this caveat.

The DNEA is now responsible for issuing statistics on the examination results, and a similar caveat applies to their published figures. Their published statistics distinguish between the results of full-time learners (that is, students registered in the formal system), and part-time learners. NAMCOL's students are categorised as part-time learners by the DNEA. Although the vast majority of part-time learners in the country are registered with NAMCOL, there are also some non-NAMCOL part-time learners. The DNEA statistics do not draw a distinction between the NAMCOL and non-NAMCOL learners. In recent years, however, NAMCOL has begun to publish statistics that, through additional analysis, do distinguish between those part-time examination candidates who are registered with the College and those that are not.

A further complication arises when comparisons of examination performance are attempted. A small number of students who register with NAMCOL because it is recognised by the Government, and who therefore benefit by receiving NAMCOL's study materials, are also registered with the non-registered private institutions to receive additional tuition. Whether these students perform better than NAMCOL's own Contact open learners or not is an open question. Even if they do, it would be unclear whether they perform better because they are in essence being crammed, because they have access to NAMCOL's study guides, or because, given the fees charged by private institutions, they come from a privileged social background.

In spite of these complications, the vast majority of part-time candidates (over 90 per cent) for the JSC and IGCSE examinations are NAMCOL students. So even where the data does not distinguish between NAMCOL and other candidates, one can take the DNEA data on examination performance as a reasonable reflection of NAMCOL students' success rates. Table 6.15 below shows the cumulative percentage of full- and part-time JSC candidates in the years 2000 to 2006 by the proportion who gained an A grade, a grade in the range A to C, a grade in the range A to D and a grade in the range A to G. The part-time candidates include NAMCOL students. In the period 2000 to 2002, the NAMCOL results include both face-to-face afternoon and evening-school candidates and distance education candidates. After 2003, the NAMCOL results cover Contact and Non-contact open learning students. Taking the 2006 results, the table shows that 2.7 per cent of full-time candidates gained an A, against just 0.4 per cent of part-time candidates; 20.7 per cent of full-time candidates gained A to C result against 9.0 per cent of part-time candidates. Because the percentage results are cumulative, if we want to know what proportion of students gained a D and G result, we would need to subtract the A to C result from the A to G (e.g. full-time candidates A to G result is 92.8 per cent, A to C is 20.7, so D to G is 72.1 per cent). The table does not show the number of incomplete entries – which will equate with 100 per cent less the percentage of A to G results (i.e. for 2006 full-time candidates, 100 per cent less 92.8 per cent or 7.2 per cent).

³⁴⁶ NAMCOL, *Statistical Digest 1999*, Windhoek, NAMCOL, 2000.

Table 6.15: Cumulative percentage achieving given grades at JSC, full- and part-time candidates, 2000 – 2006

Year	#	Full-time candidates*				#	Part-time candidates†			
		Cum. % by Grade bands					Cum. % by Grade bands			
		FT	A	A to C	A to D	A to G	PT	A	A to C	A to D
2000	200,485	2.7	19.7	42.7	91.2	24,379	0.5	9.0	28.5	79.9
2001	225,506	2.7	20.8	43.2	90.5	26,293	0.7	10.5	31.1	79.4
2002	248,571	2.8	20.8	43.1	91.2	32,326	0.5	9.2	27.4	81.1
2003	260,816	2.7	20.3	41.8	90.5	28,573	0.4	8.6	25.7	83.3
2004	259,392	2.6	20.5	42.9	91.5	26,756	0.4	11.7	32.0	88.2
2005	269,955	2.9	20.5	43.8	92.6	26,571	0.5	10.5	31.2	89.6
2006		2.7	20.7	43.7	92.8		0.4	9.0	28.0	87.0

* Full-time candidates have studied in regular schools.

† Part-time candidates have studied through NAMCOL or some other non-traditional programme.

Source: Directorate National Examinations and Assessment: Statistics of the Oct/Nov 2006 National Examinations for the Examinations Board Meeting of 27 March 2007, pp. 36, 157.

Analysing the table further, we can say that in recent years, roughly one in five (20 per cent) of full-time candidates at regular schools have passed with grades A to C and another one in five candidates have obtained a grade D. Three in five achieved grades E to G .NAMCOL students did not perform as well. About one in ten of NAMCOL’s students passed on grades A to C, about two in ten obtained a grade D and seven in ten received grades E to G. The results are actually not very good for full-time candidates, showing the massive wastage at the junior secondary level Grade 10 examinations.

The part-time results are also not very encouraging. NAMCOL provided some additional analyses of the part-time results in which it distinguishes between all the part-time results and those specific to NAMCOL and to private candidates who were studying at other institutions (1999-2002 inclusive), and in respect of NAMCOL results, the difference between NAMCOL’s distance learners and its face-to-face students in the JSC examinations (1999-2002 inclusive) (see Table 6.16). The table shows that while NAMCOL did not perform as well as all part-time provision, NAMCOL’s face-to-face afternoon and evening school provision performed better than the NAMCOL’s distance education mode. The table also shows that private candidates performed better than NAMCOL’s distance education students, but generally not as well as NAMCOL’s face-to-face learners.

Table 6.16: JSC Part-time results, 1999-2002: All part-time students, NAMCOL part-time by mode, and part-time private students

All Part-time					
Year	#	A	A to C	A to D	A to G
1999	22,045	0.3	5.8	23.1	67.1
2000	24,379	0.5	9.0	28.4	79.7
2001	26,293	0.7	10.5	31.1	79.4
2002	32,276	0.5	9.2	27.5	81.2

NAMCOL Distance Education Mode					
Year	#	A	A to C	A to D	A to G
1999	3,353	0.5	3.4	15.2	55.2
2000	5,172	0.3	4.1	15.8	71.9
2001	6,207	0.3	5.3	20.2	71.1
2002	7,292	0.3	4.3	15.0	70.0

NAMCOL Face-to-Face Mode					
Year	#	A	A to C	A to D	A to G
1999	17,891	0.3	6.4	24.8	69.6
2000	17,762	0.5	10.2	31.7	82.3
2001	18,993	0.8	11.8	34.1	81.9
2002	24,360	0.5	10.5	30.7	84.0

Private candidates					
Year	#	A	A to C	A to D	A to G
1999	801	0.3	3.3	13.1	57.5
2000	1,445	0.6	7.6	23.3	69.1
2001	1,093	2.5	13.8	34.3	77.8
2002	624	0.4	5.5	17.0	33.5

Source: NAMCOL, *Statistical Digest* 2000 (Fig. 3.4), 2001 (Fig. 3.4), 2002 (Table 3.4).

NAMCOL's results need some unpacking. As Table 5.15 shows, and as Dr. Alicia Fentiman's tracer study confirmed³⁴⁷, the majority of NAMCOL's students are students who failed some of their subjects in the full-time examinations and are trying again to get a better result.

One way of reading NAMCOL's JSC results is to say that, for an additional cost, it "saves" something like another 10 per cent of the formal system's JSC candidates from the "scrap-heap" of academic failure, given the formal system's regulations barring resit of the Grade 10 examination except for those aged 16 or under. As Table 6.10 shows, very few of NAMCOL's students are aged under 18. Moreover, although NAMCOL's results do not look that good, there are extenuating circumstances, for the vast majority of NAMCOL students are individuals who are either not among the best of the age group, or who have been failed by the system (i.e. they

³⁴⁷ Alicia Fentiman, *Tracer Study of former NAMCOL learners: Research Report*, Cambridge, IRFOL, Centre for Educational Research and Development, Von Hügel Institute, St Edmund's College, February 2007.

are among the four out of five who have already failed once at the JSC examination to obtain the required grade C or better pass).

At the IGCSE/NSSCO level, the part-time results are not nearly as good as those of full-time candidates, as Table 6.17 shows. Also, as NAMCOL's analysis of the difference between its own candidates and all part-time candidates suggests, NAMCOL is not matching the results obtained by the non-NAMCOL part-time candidates, of whom there were 3,650 in 2004 and 4,194 in 2005. Private students accounted for 16.8 per cent of all part-time candidates in 2004, and 16.9 per cent in 2005.

Table 6.17: Cumulative %age achieving given grades at IGCSE, Full- and Part-time candidates, 2000 – 2006

Year	FULL-TIME CANDIDATES				ALL PART-TIME CANDIDATES				NAMCOL PART-TIME CANDIDATES						
	All full-time	A* to A	A* to C	A* to D	A to G	All part-time	A* to A	A* to C	A* to D	A to G	All NAMCOL part-time	A* to A	A* to C	A* to D	A to G
2000	65165	1.6	19.1	35.8	88.9	17571	0.6	7.6	16.6	72.6	n/a				
2001	66288	1.7	19.4	36.4	89.1	22757	0.4	7.4	16.4	74	n/a				
2002	72624	1.5	19.4	37.1	82.9	24408	0.4	6.7	16	75.3	n/a				
2003	71514	1.5	20.2	38.4	90.8	22.752	0.4	7.6	18.1	75.6	n/a				
2004	79414	1.5	19.8	38.7	91.3	21756	0.4	7.8	19.3	77.5	18106	0.3	6.7	17.3	76.7
2005	77669	1.6	21.2	40.5	92.2	24814	0.3	7.5	19.2	79.8	20620	0.2	6.8	17.8	79.1

NAMCOL *Statistical Digest* 2001 Table 3.7), 2003 (Table 3.6), 2004, 2005 (Table 3.2)

Tables 6.18 and 6.19 below show the percentage of candidates in the October/November 2006 examinations at the JSC and IGCSE level, respectively, gaining a particular grade, A* (IGCSE only) or A to G, and a grade U (incomplete candidature). The Tables show the performance of all full-time and all part-time candidates for all subjects, and for certain key academic subjects. The “all subjects” category is not strictly comparable because full-time candidates at the JSC and IGCSE levels have a number of subject options available to them that are unavailable to part-time candidates. Also, at the JSC level, English as a Second Language is not strictly comparable because part-time candidates are not tested on their oral knowledge of the language. Both tables show the consistent underachievement of the part-time learners when compared with the full-time students.

Table 6.18: Junior Secondary Certificate Examinations: overall and key subject results by grade, full- and part-time candidates, Oct/Nov 2006 Examinations

Attendance type	Subject	Grade							
		A	B	C	D	E	F	G	U
Full-time	All	2.7	5.5	12.3	23.2	20.4	17.1	11.3	7.2
Part-time	All	0.4	1.7	6.9	19.0	21.3	20.6	17.1	13.0
Full-time	English as a	2.4	5.6	11.3	23.7	24.7	21.9	9.4	1.4
Part-time	Second Lan.	0.1	0.2	2.0	8.9	18.7	32.3	27.8	10.0
Full-time	Maths	4.3	5.2	9.1	18.6	14.1	16.6	16.1	16.0
Part-time		0.6	1.3	3.4	13.3	13.0	20.4	20.2	27.8
Full-time	Physical	2.5	4.9	10.9	22.8	17.6	16.9	14.6	9.8
Part-time	Science	0.1	1.1	6.1	21.7	19.9	20.6	18.5	12.1
Full-time	Life Science	2.0	5.2	12.9	25.7	22.5	18.3	10.4	3.0
Part-time		0.1	1.4	8.5	24.3	24.5	19.9	14.3	7.1
Full-time	Geography	1.9	4.9	12.1	25.3	18.1	16.7	12.5	8.5
Part-time		0.0	0.6	4.9	21.9	19.5	21.4	17.6	14.1
Full-time	History	1.3	3.7	9.9	25.2	20.3	20.6	13.6	5.2
Part-time		0.4	1.5	7.8	22.9	19.3	22.5	17.1	8.5
Full-time	Business	1.5	3.9	11.8	19.6	14.8	17.5	15.2	15.7
Part-time	Management	0.5	1.4	6.4	14.6	15.2	14.6	18.7	28.6
Full-time	Agriculture	3.5	8	16.6	21.7	23.8	18.2	6.5	1.7
Part-time		0.6	3.9	8.7	16.1	23.9	22.5	16.7	7.6

Source: Directorate National Examinations and Assessment: Statistics of the Oct/Nov 2006 National Examinations for the Examinations Board Meeting of 27 March 2007, pp. 1-3, 154

**Table 6.19: International General Certificate of Secondary Education Examinations:
Overall and key subject results by grade, full- and part-time candidates, Oct/Nov 2006
Examinations**

Attendance type	Subject	Grade								
		A*	A	B	C	D	E	F	G	U
Full-time	All	0.4	1.3	5.4	15.4	19.6	21.3	19.5	10.2	6.9
Part-time	All	0.0*	0.3	1.3	6.9	13.0	19.9	24.4	15.4	18.8
Full-time	Business	0.0	0.6	4.8	16	19.7	24.2	21.0	10.7	3.0
Part-time	Studies	0.0	0.0	0.3	4.5	10.7	21.6	24.6	20.3	18.0
Full-time	Development	0.2	1.7	5.1	14.1	15.1	16.8	25.6	15.2	6.2
Part-time	Studies	0.0*	0.4	2.0	9.1	11.8	14.8	25.2	19.3	17.4
Full-time	Economics	0.0	0.3	3.0	21.6	23.1	24.3	11.0	3.8	12.9
Part-time		0.0	0.0	0.4	6.2	13.1	24.6	10.1	12.2	33.4
Full-time	Geography	0.3	0.6	1.8	7.6	14.0	22.8	23.0	18.4	11.5
Part-time		0.0	0.0	0.0	2.1	7.9	22.2	24.5	22.7	20.6
Full-time	History	0.7	0.7	1.7	7.2	30.5	17.1	32.7	23.5	6.5
Part-time		0.0	0.3	0.7	3.7	9.0	17.9	31.7	25.4	11.5
Full-time	English as a second lan.	4.6	14.6	29.3	29.2	13.8	7.7	0.0	0.0*	0.0
Part-time		0.0	0.0*	0.5	3.6	10.2	23.2	34.4	10.9	17.2
Full-time	Maths	0.2	0.8	3.1	15.8	17.3	21.2	17.2	13.1	11.3
Part-time		0.1	0.1	0.5	7.7	16.6	20.7	17.0	11.5	25.8
Full-time	Agriculture	0.1	0.5	6.0	24.6	23.7	25.9	17.9	1.2	0.1
Part-time		0.0	0.0	0.5	10.6	19.1	20.2	36.0	13.1	0.5
Full-time	Biology	0.1	1.3	5.7	15	15.9	18.5	16.1	12.7	14.7
Part-time		.0.0	0.0	0.0	0.0	7.1	7.2	0.0*	14.3	71.4
Full-time	Physical Science	0.9	2.3	5.9	13.7	18.5	21.5	19.9	13.3	4.0
Part-time	Science	0.1	0.4	1.4	6.6	15.3	24.7	19.2	16.6	16.0
Full-time	Environmental	0.2	1.0	5.1	13.5	18.4	25.0	21.6	11.4	3.8
Part-time	Management	0.0*	0.3	1.3	6.9	13	19.9	24.4	15.4	18.8

* = passes under 0.05%

6.8.1 Analysis of underachievement

The relative underachievement of part-time students is analysed further in Table 6.20, which shows the percentage of full- and part-time candidates gaining A to C grades (A* to C at the

IGCSE level), and A to G grades (A* to G at IGCSE) in all examined subjects, and in key subjects. Once again the “all subject” category is not strictly comparable. Also, the data given here is for all part-time students, including a proportion that are not NAMCOL students. This proportion is known to be quite significant at the IGCSE level.

The table shows the results for the November 2005 and November 2006 examinations. The Effectiveness Ratio first described in Chapter 2 is derived by dividing the percentage of part-time students who achieve a given level in their examinations (in this case, grades A to C and A to G for JSCE, and A* to C and A* to G for the IGCSE examination) by the percentage of full-time students who achieve these grades. Thus, 21.01 per cent of IGCSE candidates gain an A* to C grade in Physical Sciences, compared with 9.02 per cent of part-time candidates. The Effectiveness Ratio is thus 9.02 divided by 21.01 or 0.429. An Effectiveness Ratio of 1.0 would mean that the part-time system is as effective as the full-time system. Any score less than 1.0 (including this one) indicates that the distance system is less effective than the traditional system.

Table 6.20: Comparison of full-time versus part-time results using the Effectiveness Ratio, November 2005 and November 2006 examinations

		November 2005 Examinations						November 2006 Examinations					
		FT	PT	A to C	A to C	Effect. Ratio	FT	PT	A to C	A to C	Effect. Ratio	FT	PT
JSC Subject													
All		20.7	10.5	0.507	92.6	89.6	0.968	20.5	9.0	0.439	92.8	87.0	0.938
English as a 2 Lang		17.1	1.4	0.082	99.8	98	0.982	19.3	2.3	0.119	98.6	90.0	0.913
Maths		21	8.9	0.424	79.8	72.1	0.904	18.6	5.3	0.285	84.0	72.2	0.860
Physical Science		16.4	5.2	0.317	85.8	77	0.897	18.3	7.2	0.393	90.2	87.9	0.975
Life Science		17.2	11	0.640	96.9	92.8	0.958	20.1	9.9	0.493	97.0	92.9	0.958
Geography		18	5.5	0.306	91.5	88.2	0.964	18.9	5.5	0.291	91.5	85.9	0.939
History		17.3	5.4	0.312	93.4	91	0.974	15.1	9.7	0.642	94.8	91.5	0.965
Business Management		20.6	11.6	0.563	90.8	84.5	0.931	17.2	8.3	0.483	84.3	71.4	0.847
Agriculture		27.5	14.7	0.535	98.7	93.8	0.950	28.1	13.2	0.470	98.3	92.4	0.940

		FT	PT		FT	PT		FT	PT		FT	PT	
		A* to C	A* to C	Effect. Ratio	A to G	A to G	Effect.	A* to C	A* to C	Effect. Ratio	A to G	A to G	Effect.
IGCSE Subject													
All	21.70	7.52	0.347	92.23	79.75	0.865	22.5	8.50	0.379	93.09	81.22	0.872	
Business Studies	19.48	7.46	0.383	94.33	80.59	0.854	21.4	4.80	0.224	96.97	82.00	0.846	
Development Studies	22.84	11.74	0.514	94.22	79.17	0.840	21.1	11.46	0.543	93.75	82.57	0.881	
Economics	27.46	12.44	0.453	89.83	72.02	0.802	24.9	6.64	0.267	87.08	66.60	0.765	
Geography	11.78	3.53	0.300	91.15	82.92	0.910	10.2	2.12	0.207	88.50	79.35	0.897	
History	6.31	1.44	0.228	91.02	84.27	0.926	10.3	4.65	0.454	93.47	88.46	0.946	
English as a 2 Lang	13.29	1.72	0.129	93.18	78.74	0.845	16.5	4.08	0.247	93.08	82.81	0.890	
Maths	17.40	5.70	0.328	85.08	70.86	0.833	19.9	8.34	0.419	88.70	74.22	0.837	
Agriculture	31.24	11.47	0.367	99.63	99.60	1.000	31.2	11.08	0.355	99.88	99.52	0.996	
Biology	17.65	5.52	0.313	82.87	68.70	0.829	22.1	7.17	0.325	85.29	67.47	0.791	
Physical Science	21.01	9.02	0.429	94.20	83.25	0.884	22.8	8.38	0.367	95.97	83.97	0.875	
Environm'l Management	21.72	7.18	0.331	96.77	89.20	0.922	19.8	9.88	0.498	97.17	88.02	0.906	

What the table shows in the final column for each year (the A to G Effectiveness Ratio) is that although the part-time system never equals or surpasses the full-time system in effectiveness, in a number of subjects – and with one or two comparatively rather poor results (Biology and Economics IGCSE) – it approaches the full-time system in respect of the proportion of students gaining grades A to G (JSCE) or A* to G (IGCSE examination). However, when it comes to comparing the effectiveness of the two approaches in respect of performance at grades A to C (JSCE) and A* to C (IGCSE examination), the part-time candidates do not perform as well as the full-time students. At this all-important level of success, the Effectiveness Ratio ranges from 0.31 to 0.64 at the JSC level, and 0.23 to 0.51 at the IGCSE level, depending on the subject.

6.8.2 Strategies for improving student performance

The table indicates the challenge facing part-time providers – including NAMCOL. This is to improve the performance of students who are currently gaining grades D to G, so that they achieve the only grades that count – A to C at the JSC level, and A* to C at the senior secondary level.

There are a number of possible strategies for doing this including:

- increasing the amount of face-to-face teaching above the current level of two hours per subject per week,
- increasing the number of tutorial centres so that more learners who currently opt for the Non-contact option can get to face-to-face sessions,
- changing the nature of the teaching system by using more radio and introducing television programmes into the teaching system, and
- focusing on the quality of the lessons given.

NAMCOL has put in costed bids for additional support. Broadly speaking, the cost of each of these options is as follows:

- Television. NAMCOL reckons that a 26-minute television programme costs NA \$3658 to produce, and that to produce one monthly programme for three subjects taught over nine months would cost NA \$ 98,753. If these programmes were re-used over a number of years – say five – the annualised cost of doing this would drop to under NA \$20,000 a year. On top of this, there would be an annual Namibian Broadcasting Corporation transmission charge of NA \$4,111 per programme, or – for 27 programmes – NA \$111,000. Neither of these cost items is driven by student numbers per course, so the cost per student would depend on the numbers registering on the courses chosen.
- Radio. NAMCOL estimates that a 26-minute radio programme would cost NA \$1,485 to produce, so to provide a weekly programme over 26 weeks for three subjects would cost just under NA \$116,000. This would be a recurrent annual cost unless the programmes were reused from one year to the next, in which case the annualised cost would be, for a five-year life, just over NA \$23,000. In addition, there is the Namibian Broadcasting Corporation transmission charge of NA \$763 per programme, or about NA \$60,000 for all the programmes. Neither of these cost items is driven by student numbers per course, so the cost per student would depend on the numbers registering on the courses chosen.
- Face-to-face teaching. NAMCOL has estimated the additional cost of this option on the basis that it teaches in 105 centres, and on the basis that it increases the existing provision of two hours per week to four, six or eight hours. The table below shows the total cost of doing this for 1,487 class-groups. Since each subject group had on average just fewer than 40 subject enrollees in 2006, a figure of 40 has been used to calculate the cost per subject-enrollee (Table 6.21). The figures illustrate the way in which total costs escalate rapidly in response to comparatively modest increases in the flexible cost per student course.

Table 6.21: Cost of increasing tutorial hours per week

Contact sessions/week	1	2	3	4
# hours tuition/week	2	4	6	8
105 centres	3,719,225.93	7,438,451.86	11,157,677.79	14,876,903.72
# class-groups	1487	1487	1487	1487
Cost/class-group 2,501.16		5,002.32	7,503.48	10,004.64
Cost per subject Enrollee (40 learners/group)	62.53	125.06	187.59	250.12

NAMCOL has also considered the cost of increasing the number of centres it has while also increasing the amount of tuition per week. Increasing the number of centres would take NAMCOL into smaller communities and also tend to reduce the number of learners per centre unless student numbers grow. Class sizes would fall, but overall costs would increase as classes are offered in more centres. This is precisely the predicament that faced the Mexican Telesecundaria as it expanded into more and more remote or smaller communities, with the results that costs per student began to climb³⁴⁸.

6.9 Destination of NAMCOL learners

Reference has already been made to the Tracer Study of NAMCOL students undertaken in late 2006 by Dr. Alicia Fentiman³⁴⁹. The study focused on former IGCSE students who were enrolled in NAMCOL between 1999-2001, when an average of just over 4000 IGCSE learners were registered in each of these years. As Dr. Fentiman acknowledged, it proved difficult both to trace and gain the co-operation of the ex-NAMCOL students. As a result, only 478 completed questionnaires were received, and just 75 in-depth interviews with ex-NAMCOL IGCSE student were undertaken³⁵⁰. Of those who completed the questionnaires, three in four (76 per cent) were women and one in four (24 per cent) were men³⁵¹ – a proportion roughly equivalent to the gender division of NAMCOL’s student body for those years (see Table 6.9).

Three out of four (77 per cent) of the respondents came from just four regions of Namibia: Khomas (where the capital, Windhoek, is located), Erongo (where Swakopmund and the development area of Walvis Bay are located), and Oshana and Kavango in the more populated north of the country. One in four of the respondents (26 per cent) came from Khomas³⁵².

Changes to the research design to boost the number of respondents led to a house-to-house search for ex-NAMCOL students in the heavily populated town of Katutura where NAMCOL’s headquarters is based, and also to an attempt to locate ex-students at the Ramatex factory where many ex-students are employed. In these respects, the sample was not necessarily representative³⁵³. Over half (53 per cent) of the respondents were aged 26 to 30³⁵⁴, and hence would have fallen squarely in the median range of NAMCOL’s learners in 1999-2001 (i.e. 20 to 24 years old, see Table 6.10).

Nineteen out of twenty (95 per cent) of the students who completed the questionnaire indicated that they had enrolled in NAMCOL to improve their grades or “points” in the IGCSE examinations. The respondents had studied a total of 1,096 subjects, at an average subject load of just over 2.5 subjects per head, which is significantly higher than the range of 1.90 to 1.98 taken by the average IGCSE student in the relevant years. The most popular subjects had been English as a Second Language, which accounted for over one in five of all subject registrations, followed

³⁴⁸ Greville Rumble, *The Costs and Economics of Open and Distance Learning*, London, Kogan Page, 1997, p. 135.

³⁴⁹ Alicia Fentiman, *Tracer Study of former NAMCOL learners: Research Report*, Cambridge, IRFOL, Centre for Educational Research and Development, Von Hügel Institute, St Edmund’s College, February 2007

³⁵⁰ Ibid. Sections 1.3, 3.0

³⁵¹ Ibid. Section 3.1

³⁵² Ibid. Section 3.2.

³⁵³ Ibid. Section 2.3.

³⁵⁴ Ibid. Section 3.3.

by Development Studies and Biology/Life Science³⁵⁵. These three subjects accounted for 56 per cent of all subject registrations by the respondents. Given the crucial importance of English as a qualification for academic and employment progression, the fact that English as a Second Language figured highly among the subjects taken comes as no real surprise.

In spite of the acknowledged methodological difficulties associated with Dr. Fentiman's research³⁵⁶, her work provides some interesting pointers to the destination of NAMCOL's senior secondary learners:

- Academic qualifications: Of the 436 respondents who replied to the question:
 - 351 (82.4 per cent) indicated that the Grade 12 IGCSE remained their highest academic qualification,
 - Fourteen (3 per cent) had gone on to do vocational qualifications,
 - 25 (5.7 per cent) had gained a tertiary certificate of some kind,,
 - 40 (9.2 per cent) had completed a tertiary diploma, and
 - 6 (1.4 per cent) had gained a first degree³⁵⁷.

Among the courses that NAMCOL's ex-students had enrolled in after leaving NAMCOL, 26 had enrolled on computer courses, 19 had enrolled on the Basic Education Teacher Diploma (BETD), 10 had taken courses in Human Resource and other areas of management, and 12 had enrolled on some form of vocational course³⁵⁸.

- Further education: 135 (39 per cent) of the respondents were currently enrolled in some form of further education. Of these:
 - 40 (29.6 per cent) were taking further courses with NAMCOL,
 - 21 (15.6 per cent) were in some form of vocational training,
 - 24 (17.8 per cent) were at the Polytechnic of Namibia,
 - 23 (17 per cent) were at the University of Namibia,
 - 23 (17 per cent) were at a College of Education, and
 - 5 (3.7 per cent) were studying with the distance-teaching University of South Africa (UNISA)³⁵⁹.
- Paid employment: Statistical data (see Table 6.11) suggests at least nine out of ten of NAMCOL's students in the years 1999 to 2000 were not doing any paid employment. Of the former NAMCOL learners, in answer to the question "Are you currently employed?"
 - 56 per cent said that they were,
 - 41 per cent said that they were not, and
 - 3 per cent gave a nil response.

Some of those who were "unemployed" would have been in full-time education³⁶⁰. Unfortunately at this point in her report, Fentiman only gives percentages and not actual

³⁵⁵ Ibid. Section 3.6.

³⁵⁶ Ibid. Section 4.

³⁵⁷ Ibid. Section 3.7.

³⁵⁸ Ibid. Section 3.7.

³⁵⁹ Ibid. Section 3.7

³⁶⁰ Ibid. Section 3.8

figures, but this suggests that about 240 individuals were employed, 175 were not and 13 did not respond. Again figures are not given, but from the information given one can infer that of those employed, 33 per cent (about 141 individuals) were employed in private sector enterprises, 4 per cent (17 individuals) were self-employed, and 20 per cent (about 86 individuals) secured employment with in a government post³⁶¹.

- Time to achieve employment: When asked how long it took them to get a job after they had left NAMCOL,
 - 63 took under six months;
 - 50 between six months and a year;
 - 54 took one to two years; and
 - 98 took over two years.

We can infer that some individuals gained employment, only to lose it³⁶².

- Salary: 64 per cent (275) of the respondents were prepared to divulge their monthly salary. Of those that did,
 - 53 (19 per cent) earned under NA \$ 500 a month,
 - 151 (55per cent) earned between NA \$ 501 and NA \$ 2500,
 - 56 (20per cent earned between NA \$ 2501 and NA \$ 5000,
 - 13 (4.7per cent) earned between NA \$ 5001 and NA \$ 10,000 a month, and
 - 2 earned over NA \$ 10,000 a month.

Unfortunately Fentiman gives neither absolute figures nor percentages for the number of students who indicated they were unsatisfied, satisfied, very satisfied, or extremely satisfied with their employment, but reading off from her bar chart indicates that roughly 170 students were unsatisfied, roughly the same number did not respond to the question, and the rest expressed some degree of satisfaction with their employment³⁶³.

- Applicability of learning: Respondents were asked if they were finding what they had studied at IGCSE at NAMCOL useful in their present position. Again Fentiman does not give figures so it is unclear whether her percentages are based on the total survey population (248 students) or just those who had jobs at the time of the study (which as the wording of the question implies would give a base of about 240 for this question). Of the unknown number who did respond to the question;
 - 19 per cent of the respondents chose not to answer it,
 - 42 per cent said that what they had studied did not help them in their current position – but of course some continued with further studies that might have had greater relevance, and
 - 39 per cent said that what they had learnt was useful in their present occupation³⁶⁴.

³⁶¹ Ibid. Section 3.8

³⁶² Ibid. Section 3.8

³⁶³ Ibid. Section 3.8.

³⁶⁴ Ibid. Section 3.9.

The in-depth interviews allowed some of these points to be followed up – and Fentiman says (without quantifying the statement) that “the majority of respondents were pleased with the qualifications they gained at NAMCOL”, and that some of the respondents indicated that NAMCOL had indeed helped them improve their IGCSE grades and hence opened previously closed doors to further study³⁶⁵.

For all its flaws, Fentiman’s report is the best that we have – and does suggest that NAMCOL has had a positive and beneficial impact on at least a reasonable proportion (more than 50 per cent) of its former students.

6.10 Quality assurance³⁶⁶

NAMCOL recognises that a strong commitment to quality will help distance education systems break free from the reputation for poor quality that hung around a number (although not all) of the 19th and 20th century commercial correspondence colleges. NAMCOL has a number of quality assurance measures in place, all guided by a Quality Assurance Policy. A key quality initiative is a process for reciprocal external peer reviews with BOCODOL. In addition to gaining helpful feedback from colleagues at BOCODOL about quality assurance, NAMCOL gains valuable information by conducting quality audits at BOCODOL.

It is generally accepted that the quality of distance education programmes rests on five foundations:

- the quality of institutional leadership and its ability to articulate a vision that will ensure survival,
- sound financial management,
- the quality of the programmes, courses and learning materials both in respect of their academic content and relevance, and the quality of the pedagogy underpinning their design,
- the quality of the student support services including the quality of the advice given to students, the quality of teaching, and the quality of the assessment process (both formative and summative), and
- the quality of the logistical system underpinning the student support system and the materials distribution system (for example, timely despatch of materials to students so that they have them to hand when they need them, timely feedback on student queries, rapid turnaround between receipt of an assignment and the return of the corrected assignment to the student).

NAMCOL has been fortunate both with the quality of its senior management and with the fact that it has enjoyed the sustained support of government and senior civil servants within the Ministry of Education. It has regularly assessed its position and is currently operating under its third three-year strategic development plan (for 2005-2008) that was agreed following extensive consultation with stakeholders.

Financial management, which operates within a framework of guidelines and defined processes and procedures, is sound, and the College keeps within its budget. The level of government subsidy is based on a formula that was initially proposed in 1977 and that has been used with minor changes ever since. The formula as currently agreed assures NAMCOL that it will receive a level of government subsidy based on:

³⁶⁵ Ibid. Section 3.10.6.

³⁶⁶ This section is based in part on NAMCOL, *NAMCOL's Quality and Standards Document*, May 2005.

$$\begin{aligned}
 & [(\text{The unit cost per subject enrolment of formal junior secondary education} \times 0.65 \\
 & \times \text{number of junior secondary subject enrolments in NAMCOL}) \\
 & + \\
 & (\text{The unit cost per subject enrolment of senior secondary education} \times 0.65 \times \\
 & \text{number of senior secondary subject enrolments in NAMCOL})] \\
 & \times \\
 & \text{an agreed allowance for inflation (to be checked annually).}
 \end{aligned}$$

The most challenging aspect of this formula is that the funding level for any year is applied to the number of students that NAMCOL had enrolled in the previous year. So while there is no formal ceiling on the number of students that NAMCOL can enrol, the College has to fund any student number expansion from its own reserve funds or from other income streams (notably student fees) for the first year of expansion.

6.10.1 Process of accountability

NAMCOL operates within a defined process of accountability including:

- the preparation of annual reports and annual financial statements, coupled with external audit,
- reciprocal peer quality audits with the Botswana College of Distance and Open Learning (BOCODOL),
- a requirement that the College adhere to any regulations laid down by the National Examinations, Assessment and Certification Board (NEACB) of the Namibian Qualifications Authority, and
- the duty to comply with legislation such as the Affirmative Action Act of 1998³⁶⁷.

The NEACB lays down the entry requirements that NAMCOL students must comply with before they can register for the JSC and IGCSE/NSSCO level and it is this Board, rather than NAMCOL itself, that awards qualifications and hence guarantees the quality of the qualifications offered by NAMCOL at the secondary level. The actual examinations sat by NAMCOL's secondary level students are administered by the Directorate of National Examinations and Assessment in the Ministry of Education. It is therefore this Directorate rather than the College that vouches for the integrity of the examination process.

However, it is NAMCOL's internal quality assurance processes that really underpin the quality of what the College does. The College's Programme Developers serve on the curriculum panels and committees of the National Institute for Educational Development (NIED). Through this, the College keeps track of changes in the JSC and IGCSE/NSSCO curricula. Materials are developed and produced in conformity with the standards, processes and procedures laid down in NAMCOL's House Style Manual, which has been produced by the Programme and Materials Development Division of the College. The House Style Manual also sets out procedures for the revision of existing materials and the integration of media and technology in the design and

³⁶⁷ The Affirmative Action Act (Act 29 of 1998) promulgated the Affirmative Action Policy of the Government. The Act requires that no person shall be discriminated against on the basis of race, sex, creed, colour, religion, age, mental or physical disability, and that all persons shall be treated equally with regard to recruitment, terms and conditions of employment, human resource practices, and in relation to access and participation in programmes and activities.

delivery of study materials³⁶⁸. All contract staff involved in materials development are provided with training, and course writers are given a *Course Writers' Manual* to assist them in the process of writing quality distance education materials. The draft study guides are checked for their quality before they are finally produced. The Materials Production and Despatch Unit follows a set of pre-agreed procedures when materials are packed and despatched in order to minimise mistakes and ensure timely delivery of materials to learners.

The College maintains rigorous control over the admissions process to ensure that those individuals offered a place are qualified and will be allowed to sit the examinations by the Directorate of National Examinations and Assessment. The number of individuals allowed to enrol is controlled for financial and capacity reasons, and strict control is maintained on the numbers offered a place on NAMCOL's courses. Enrolment forms, which are handed in by applicants at one of the over 100 enrolment centres set up by the College, are sent to the College's headquarters where they are scanned in order to generate a student record. There is a process by which the data entered on the initial record is verified.

Similarly, strict procedures and checks apply in the assignment handling area, and a proportion of all submitted assignments are moderated to check on the quality of the marking and formative feedback given to students on their work. Tutors are penalised (through the docking of a proportion of their payment) for failing to mark assignments on time. This is of key importance given research that indicates that drop-out in distance education is directly correlated with the length of the turnaround time between the date a student submits their assignment for correction and marking, and the date they receive the marked assignment back.

Management reports are generated from the data collected by the administration, and an annual *Statistical Digest* is prepared³⁶⁹. Longitudinal data is now available in a number of areas to analyse trends. The Research and Evaluation Unit is responsible for:

- evaluating and monitoring the programmes, materials and services offered by NAMCOL with a view to improving on effectiveness, efficiency and quality,
- conducting market research to establish the level of demand for all new programmes that the College intends to offer, and
- overseeing research and evaluation consultancies.

Regular surveys are carried out to gather information from students on the quality and usefulness of the course materials with the view to improve on this, the causes of student drop-out, the impact of programmes, and the impact of workshops and training sessions held in support of staff training and development.

The overall effect of the measures in place, coupled with the stress on staff development and internal and external communication with stakeholders is that NAMCOL exhibits many of the characteristics of a successful learning organisation.

³⁶⁸ NAMCOL, *House Style Manual: 2006 Revised Edition*, NAMCOL, Programme and Materials Development Division, 2006.

³⁶⁹ NAMCOL, *Statistical Digest 1999*, Windhoek, NAMCOL, 2000; NAMCOL, *Statistical Digest 2000*, Windhoek, NAMCOL, 2001; NAMCOL, *Statistical Digest 2001*, Windhoek, NAMCOL, 2002; NAMCOL, *Statistical Digest 2002*, Windhoek, NAMCOL, 2003; NAMCOL, *Statistical Digest 2003*, Windhoek, NAMCOL, 2004; NAMCOL, *Statistical Digest 2004*, Windhoek, NAMCOL, 2005; NAMCOL, *Statistical Digest 2005*, Windhoek, NAMCOL, 2006; and the draft *Statistical Digest 2006*, which was due to be published in July 2006.

6.11 Unanswered questions

Before turning to the issue of costs, it is worth reviewing some of the questions that arose during the research that could not be answered – usually because the requisite data does not exist or because existing analyses provide only partial answers. What follows is by no means an exhaustive list. Among the unanswered questions are the following:

- Why do potential applicants not enrol in NAMCOL?
- Why, when there is a roughly 49 to 51 male/female division of the genders in the formal school system at the primary and senior secondary level, but a 46 to 54 male/female division at the junior secondary level, does NAMCOL not attract more boys and young men – or conversely, why does NAMCOL more men than women? NAMCOL's gender balance is about 36 to 64 male to female at the junior secondary level, and 33 to 66 at the senior level.
- What proportion of NAMCOL students have not studied previously at the JSC and/or IGCSE/NSSCO level? What are the demographic characteristics of these students (gender, age) and how do they differ from the students who did sit, but failed, some of their subject examinations in the formal system, and hence come to NAMCOL to retake some subjects?
- Is there any difference in the demographic characteristics of NAMCOL and non-NAMCOL part-time students?
- Within NAMCOL, is there any demographic difference between the Contact and Non-contact mode students with respect to their demographic characteristics? What might such findings say about NAMCOL's current pedagogic and support strategies?
- What proportion of NAMCOL registered students is also enrolled in other private institutions at the same time, and is there any correlation between the fact they have additional support and their examination results? What might such findings say about NAMCOL's current pedagogic and support strategies?
- How much time do NAMCOL's students spend studying?
- Is there any discernable correlation between the examination successes of NAMCOL students, and demographic characteristics? For example, do women students perform better than men? Do older students perform better than younger ones? Do students resident in areas where there are better employment prospects perform better than those living in areas of high unemployment?
- Is there any correlation between the grades that a student achieved in the examinations when they were part of the formal system, and their achievement in the examinations following study at NAMCOL? Does NAMCOL add-value? Do the students who have already failed a subject at Grade 10 or Grade 12 in the formal system, get a higher grade, the same grade or a lower grade when they sit the examinations as part-time candidates?
- Why do NAMCOL students drop-out?
- With respect to the Tracer study and any further studies on the destinations and academic and employment outcomes for NAMCOL students, are there any discernible differences between those who succeed and those who do not in terms of demographics (gender, age, geographical location, social background) and ultimate grade in the examinations?

Answering these and similar questions might give one a better insight into what makes for success and what makes for failure, and how failure might be turned into success so that NAMCOL can perform even better than it does at the moment.

6.12 Costs

Obtaining reliable data with which to compare the costs of NAMCOL and the formal secondary school system is problematic. The problems include:

- The education budget distinguishes between operational costs and development costs. The latter covers items that are traditionally treated as capital expenditure (on buildings and furniture and equipment). It does not identify the value of past capital investments but only the money being set aside in a particular year. One of the main cost advantages of distance education is that many distance education institutions do not have spend money on building classrooms, but instead make use of existing educational facilities as study centres etc. Quite often they are allowed to do this at no cost or at a non-commercial cost, as is the case with NAMCOL. NAMCOL is not required to pay rental, although it does make a contribution towards the running costs of the facilities it uses. This results in considerable economies of scope. Failure to take into account the capital cost savings that arise in distance education systems can seriously underestimate the relative cost efficiency of such systems. Marope's report, for example, only takes account of the operating costs and thus ignores the very significant capital costs of building and maintaining secondary schools³⁷⁰. The current cost of building a secondary school with an annual capacity of 980 students is estimated to be NA \$50 million, with another NA \$2.5 million for equipment and furnishing³⁷¹. Building a single block of three classrooms catering for 105 students would cost NA \$325,000, with another NA \$160,000 per classroom for furniture and equipment³⁷². The annualised capital cost is of the order of NA \$555 per pupil. If NAMCOL's students were absorbed into the formal system, considerable additional capital costs would be incurred.
- Another issue is that the line budget for secondary education (Main Division 05, Line 300) does not cover the full costs of secondary expenditure. The most significant omission is the cost of student hostels (which overall account for 9 per cent of the education budget³⁷³). Hostels are provided to meet the needs of both primary and secondary students who are unable to live at home during term time. There is no accounting data on the proportion of hostel costs attributable to secondary education, so an estimate has to be made. Some estimates put the proportion of hostel costs attributable to secondary education as being as high as 90 per cent, though for the purposes of this analysis a more conservative figure of 80 per cent is assumed. In addition, some of the expenditure incurred in other main divisions of the Ministry support secondary education. This is particularly true in the areas of strategic direction, management, planning, and research and evaluation. None of these overhead costs are apportioned formally to the actual activity of supporting secondary education (although for the purposes of determining unit costs in the formal system, the formula used to fund NAMCOL assumes that these costs are apportioned across primary and secondary education pro-rata to the number of students in each sector).

³⁷⁰ Mmantsetsa Toka Marope, *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*, Africa Region Human Development Working paper Series No. 84, Human Development Sector, Africa Region, The World Bank, 2005, §6.30, p. 84.

³⁷¹ Office of the President, National Planning Commission, *Millennium Challenge Account: Namibia*, Windhoek, Office of the President, 2007, p. 72.

³⁷² Ibid., p. 74.

³⁷³ Ministry of Education, *Expenditure Issues Paper*, 2005 (first draft). Electronic copy obtained from Mr T Kakonda, Planning Division, MOE, Windhoek, Section 3.

- The cost of running examinations is carried by the Directorate of National Examinations and Assessment – although here, since students in the formal system and at NAMCOL take the same examination, the cost per subject sat will be the same for both. However, NAMCOL students take fewer subjects, so the cost per NAMCOL student would be less than that for formal system students.
- A number of other ministries provide services to the Ministry of Education and its various programmes. In the absence of any cross-charging mechanisms, none of the costs of these benefits is reflected in the secondary education budget. Estimates suggest that these costs, if reflected in the MOE's budget, would add another 20 per cent to the overall cost of the MOE³⁷⁴. In contrast, NAMCOL as an autonomous para-statal institution, has to meet the full costs of its administration.

Table 6.22 below shows the expenditure per learner in the formal system, based on the Appropriation Accounts for the financial year in question.

Table 6.22: Expenditure on secondary education, 2001/02 to 2005/06

Financial Year	Secondary Education: Formal System		
	Appropriation Accounts: Expenditure	# learners in formal system	Expenditure per learner
2001/2002	476,393,321	130,577	3,648.37
2002/2003	467,595,808	137,099	3,410.64
2003/2004	476,578,027	141,752	3,362.06
2004/2005	506,993,323	144,289	3,513.74
2005/2006	549,947,161	148,104	3,713.25

These figures suffer from the drawbacks identified above. A further difficulty is that neither the budget nor the expenditure figures in the Appropriation Accounts allow one to separate out the budget for or costs of junior and senior secondary education.

There are also difficulties in dealing with NAMCOL's costs. NAMCOL, as indicated earlier, offers a number of professional programmes, as well as running its bookshops and participating in a research programme. These activities attract both costs and income. In the absence of any direct government subsidies for the professional programmes, NAMCOL in effect cross-subsidises these programmes from its Alternative Secondary Education Programme. Most cost studies of NAMCOL have attributed all of NAMCOL's costs to the secondary programme and have not separated out the costs of these other programmes. In addition, those costs that cannot easily be attributed to programmes and thus constitute NAMCOL's business sustaining costs cannot all be apportioned as secondary programme overheads.

6.12.1 Activity-based costing

NAMCOL has sought over the last year or so to develop an activity-based costing approach that will enable it to cost its activities more accurately³⁷⁵ and considerable progress had been made by

³⁷⁴ Ed Du Vivier, *Financing NAMCOL into the Future: A Study of the College's Efficiency, Cost-effectiveness, Fee Structure and Funding Formula*, 27 March 2007, §1.1.1, p. 15, based on the additional costs built into the cost of formal secondary education in the NAMCOL funding formula.

³⁷⁵ Greville Rumble, A Report of a Short-term Advisory Mission to conduct a Study on the Costs and Funding of the Namibian College of Open Learning (NAMCOL), Cambridge, International Research

mid-2007. This has enabled the College to identify, for example, the committed and flexible costs of developing, producing and delivering NAMCOL's various academic programmes, as well as the services offered by the Bookshop. In this analysis, "Other" costs are in effect business-sustaining costs not related directly to the programmes and activities carried out by NAMCOL. Applied to the 2007-2008 budget of NA \$47,987,071, the activity costing exercise gives the following results (Table 6.23):

Table 6.23: NAMCOL 2007-2008 Budget by programmes/activities

	JSC	NSSCO	CED	CYP	CLGS	Bookshop	Other
Expenditure	15,871,722	15,991,479	3,246,990	2,367,691	326,389	1,075,905	3,717,980
Income	3,785,199	5,204,481	362,000	325,000	765,000	781,400	500,000
Balance	12,086,523	10,786,998	2,884,990	2,042,691	-438,611	294,505	3,217,980

Source: NAMCOL Finance Division, June 2007.

Summing the net costs of the Certificate in Education for Development (CED), the Commonwealth Diploma in Youth in Development (CYP) and the Certificate in Local Government Studies (CLGS) professional programmes, bookshop and "other" (i.e. management) costs gives a total of NA \$8,001,555 that is carried (that is, cross-subsidised or in the case of the management costs absorbed) by NAMCOL's Alternative Secondary Education Programme (ASEP). However, making the ASEP programme carry the costs of non-profitable programmes distorts the true cost of the ASEP programme. It is therefore arguable that the only "overhead" costs that should be charged to ASEP are a proportion of the net business sustaining costs of NA \$3,217,980. For the purposes of the analysis carried out here, it could be assumed that some 80 per cent of these costs should be charged against ASEP (i.e. 80 per cent of NA \$3,217,980).

Many of the reports providing information on costs are based on budgetary figures rather than actual expenditure. Since expenditure does not always equate with budgets, this is problematic. This would be more of a problem at the primary level where the Ministry of Education's Appropriation Accounts for primary education show a consistent and significant annual overspend. At the secondary level, there has generally been, at least in recent years, a relatively small underspend. However, the final budget figure in any year – which is the base against which the Appropriation Accounts measure expenditure – have generally been augmented by mid-financial year virements, so that in general terms, end-of-year expenditure exceeds start-of-year budgetary provision. Exactly which figures are taken as the financial data for cost calculations can make a significant difference.

6.12.2 Measuring student loads

Equally, calculations of student loads in the formal system will differ if student numbers are based on the Fifteenth Day School Statistics, collected in the first month of each academic year, or on the annual education census data collected in August. The latter arguably gives a truer reflection of student load (the Fifteenth Day statistics generally overstate enrolments by about 2.5 per cent, though the figures may be 13 per cent above or below those reported in the Education

Foundation for Open Learning, June 2006; Ed Du Vivier, Activity Based Costing Analysis for NAMCOL, mimeo, 2007; Ed Du Vivier, *Financing NAMCOL into the Future: A Study of the College's Efficiency, Cost-effectiveness, Fee Structure and Funding Formula*, 27 March 2007.

Statistics³⁷⁶). Unless raw data is provided in the cost calculations or an explicit statement of methodology is made, it can be unclear which figures form the basis for particular calculations of unit cost.

Most cost studies attempt to provide a cost per full-time equivalent (FTE) student. Here too there is considerable scope for methodological divergence. Approaches that focus on class-hours as a determination of a full-time equivalent load (the basis of much planning in traditional education) will disadvantage distance education providers because, in distance education, students spend a lot of their time studying independently. To get around this problem, analysts working on the comparative costs of distance and traditional education systems tend to focus on student credit or course loadings; that is, the number of credits or courses (or in NAMCOL's terms, subjects) that a student takes each year. While credit loadings may work satisfactorily where the basis of counting credits is the same (and it often is not), course loads can be misleading because courses may not involve the same amount of work. This is particularly the case where courses are packaged as modules of different length.

There may also be differences in the number of courses students are allowed to take. Within the Namibian secondary school system, a full-time load is generally equated with taking nine subjects per year at the junior secondary level and six at the senior secondary level. In theory, this should provide a reasonable approach to the determination of a full-time student. However, even here there is a problem. In the formal senior secondary school system in Namibia, students spend two years studying each subject, whereas in NAMCOL students study the full two-year curriculum (years 11 and 12) in one year. As a result, one year of study of a subject in the formal system is equivalent to just half-a-year in NAMCOL's system. The same is not true, however, of NAMCOL's junior secondary school provision where NAMCOL offers just the final year of the curriculum (year 10) to be studied across the full academic year.

The result is that at the JSC level, one subject enrolment at year 10 in NAMCOL is equivalent to one subject enrolment at year 10 in the formal system, while at the NSSCO level, one subject enrolment in a year is equivalent to two subject-year enrolments in the formal system. This is because the NAMCOL student studies two year's worth of curriculum in a single year, whereas the formal student studies the NSSCO curriculum in any subject over two years. The real difference between the two systems is the number of subjects per year studied by a student.

6.12.3 Cost calculation challenges

A further problem when making comparisons is that a student in the formal system who studies, say six subjects in a year "costs" one year's worth of indirect common costs plus apportioned business sustaining costs, together with six times the annualised committed course costs plus six times the flexible costs per course. A NAMCOL student who takes two courses a year over three years will cost six times the annualised committed course costs plus six times the flexible costs per course, together with three year's worth of indirect common costs plus apportioned business sustaining costs. Because of the NSSCO-level "two academic-years in one calendar-year" structure, this will affect JSC students more than NSSCO students. At present, NAMCOL has not analysed activity costs down to the course level, so it is impossible to know what effect a slower rate of throughput has on NAMCOL costs.

³⁷⁶ Ed Du Vivier, *Financing NAMCOL into the Future: A Study of the College's Efficiency, Cost-effectiveness, Fee Structure and Funding Formula*, 27 March 2007, §1.1.1, p. 16.

6.12.4 Government funding

The expectation when NAMCOL was set up was that it would continue to rely on significant levels of government subsidy. The College is funded on a formula basis, which was first agreed in 1997³⁷⁷. Under the Act establishing NAMCOL, the original formula and any changes to it must be mutually agreed between the Minister of (Basic) Education, the Minister of Finance, and the College. Funding is based “on the principle that the provision of secondary education via NAMCOL should not be more expensive than providing secondary education via formal education”. Basically the formula moves through a series of steps to derive the level of subsidy that the Government will give NAMCOL. These steps are as follows:

- Step 1: Identify Ministerial Overheads by adding the cost of the following "Main Divisions" in the Ministry of Education together (02 Administration, 03 Programme Implementation and Monitoring of Educational Standards, 09 Planning and Research and Development).
- Step 2: Apportion the ministerial overheads between formal primary and secondary education, pro-rata to the number of students in each of these levels.
- Step 3: Identify the intra-ministerial recurrent costs of secondary education by adding together (a) the total operational expenditure of Main Division 05 Secondary Education, (b) 10 per cent of the annual sum set aside for capital expenditure on secondary education projects, (c) the full cost of running school examinations through the Directorate of Examinations and Assessment, and (d) the cost of school books, and add to this the ministerial overheads apportioned to secondary education under Step 2 above.
- Step 4: Multiply the total intra-ministerial costs identified in Step 3 by 1.20 – to reflect the additional contributions to secondary education from other ministries. The resulting sum is defined as the full recurrent cost of providing formal secondary education.
- Step 5: Apportion the full recurrent cost of providing secondary education between junior (Grades 8 to 10) and senior (Grades 11 and 12) secondary education pro-rata to the number of students enrolled in each level as determined by the Fifteenth Day statistics.
- Step 6: At this point, the formula introduces the number of subject enrolments per student – an average of 8.81 at junior secondary level and 5.88 subjects per student at senior level. The number of students is multiplied by the average number of subject enrolments to give the number of subject enrolees at each level. From this, a unit cost per subject enrolee at the junior and senior secondary level is derived (see Table 6.24).

³⁷⁷ Annex to Memorandum from Mr Justin Ellis, the then Under Secretary (Adult Education, Libraries and Culture) in the Ministry of Basic Education and Culture, Department of Adult Education, Libraries and Culture, to the Permanent Secretary, Ministry of Finance, dated 17 October 1997.

Table 6.24: Cost per subject enrolee, formal secondary school system, per 2007-2008 budget

	# learners	Average subjects/enrollee	# subject enrollees	2007-2008 budget (NA \$)	Cost per subject enrolee (NA \$)
Secondary education	156,261	n/a	1,285,323	835,390,494	649.95
Junior	125,088	8.81	1,102,025	668,735,808	606.82
Senior	31,173	5.88	183,297	166,654,686	909.20

Source: NAMCOL funding formula 2007-2008.

- The unit cost per junior and senior secondary school subject enrolment in the formal system is then multiplied by a ratio of 0.65 (65 per cent) to give a Government subsidy to NAMCOL of NA \$394.44 per junior secondary subject enrolee, and NA \$590.98 per senior secondary subject enrolee. These figures are then multiplied up by the number of enrolees at each level, added together, and inflated at an agreed rate to provide the total Government subsidy to NAMCOL.

Note in respect of this formula that:

- Since the formula is worked out on the basis of the budget, all the costs in Steps 1-3 are based on budget and not actual expenditure.
- In Main Division 5 (Secondary Education), no distinction is made between the costs of junior and senior education. There may indeed be a difference – but this is unknown.
- The 20 per cent overheads charge levied in Step 4 is a guesstimate and has no foundation in fact.
- The total budgeted cost of secondary education for 2007-2008 is NA \$835,390,494. In accordance with Step 5, this is divided pro-rata between junior and senior secondary education. The Fifteenth Day statistics used are 125,088 enrolled in junior secondary grades and 31,173 in senior secondary grades. As Table 6.25 shows, because of the nature of the data and the way in which overheads are apportioned, the cost per secondary school student, and junior secondary and senior secondary school student, is the same.

Table 6.25: Average cost per student, formal secondary education system, per 2007-2008 budget

	# learners	2007-2008 budget (NA \$)	Cost/student (NA \$)
Secondary education	156,261	835,390,494	5,346
Junior	125,088	668,735,808	5,346
Senior	31,173	166,654,686	5,346

- It is only when student numbers are translated into subject enrolments at a ratio of 8.81 subjects per junior secondary student and 5.88 subjects per senior secondary student, and the total secondary school budget is apportioned across the junior and senior secondary school sectors pro-rata to the number of subject enrolments, that the unit cost between junior and senior levels differs (see Table 6.24 above). However, the rationale for using

subject enrolments is odd since the average load of 8.81 and 5.88 subjects per student is the average subject load for *full-time* students in secondary education at the junior and senior level respectively. This compares with the theoretical maximum subject load of nine subjects at the JSC level, and six subjects at the IGCSE/NSSCO level. The only thing that makes subjects "cost" more at senior secondary level is that students take fewer subjects at this level. If one were, as Marope's report implicitly recommended³⁷⁸, to determine costs per full-time equivalent student, then one might reasonably take these loads as equivalent to a full-time equivalent load, and hence work on an operational cost per full-time equivalent student in the formal system of NA \$5,346. If one wished to use the theoretical maximum course load as the basis of calculating the cost per subject, then the cost per subject would change (see Table 6.26). Also, of course, the calculation is based on the assumption that the cost per student at the junior and senior secondary level is the same.

- It is perhaps worth mentioning that the subjects to student ratio has not been adjusted to reflect actual movements in this ratio over the years.

Table 6.26: Unit cost per subject enrolee, formal secondary education system, based on 2007-2008 budget

	Subject load per student		Cost per FTE student (NA \$)	
	Junior secondary	Senior secondary	Junior secondary	Senior secondary
Cost per student			5,346.12	5,346.12
Cost per subject (NA \$)				
Actual subject load	8.81	5.88	606.82	909.20
Theoretical maximum subject load	9.00	6.00	594.01	891.02

- The final point to make about NAMCOL's funding formula is that the formula generates only part of NAMCOL's total income. In 2007-2008 the formula will generate a Government subsidy of NA \$29,663,991 towards operational costs and NA \$1 million towards capital costs. Other income will amount to NA \$17,323,080. Non-Government income amounts to 36.1 per cent of total income³⁷⁹.

Table 6.27 below, which is based on the data in Table 6.23, shows the activity-based 2007-2008 budget for the JSC and NSSCO, as well as the total identifiable budget for NAMCOL's Alternative Secondary Education programme. In this scenario, the "overheads" (that is, management costs and the balance of current profit and loss on the NAMCOL's other programmes) are absorbed across the programmes pro-rata to the number of students enrolled in the JSC and NSSCO. Unit costs per subject enrolee and student are then calculated. In calculating the subject load per NAMCOL student, it is important to note that a student taking an IGCSE/NSSCO subject at the senior secondary level is in fact doing two years academic study in one calendar year. Hence the actual load of these students is double the ratio of subjects to student

³⁷⁸ Mmantsetsa Toka Marope, *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*, Africa Region Human Development Working paper Series No. 84, Human Development Sector, Africa Region, The World Bank, 2005, §6.27, p. 83.

³⁷⁹ NAMCOL, 2007-2008 Budget.

heads (i.e. in 2007, NSSCO students were studying an average of 1.87 subjects, which represents 3.74 subject-years; JSC students were studying on average 2.19 subjects).

Table 6.27: NAMCOL unit costs per subject enrolee and per student, 2007-2008 budget estimate, assuming all non-ASEP net costs are charged against the ASEP programme (Scenario 1)

	JSC	NSSCO	All secondary
Identified Expenditure	15,871,722	15,991,479	31,863,201
Overheads apportioned	3,791,846	4,209,709	8,001,555
Total costs carried	19,663,568	20,201,188	39,864,756
Identified Income	3,785,199	5,204,481	8,989,680
Net cost	15,878,369	14,996,707	30,875,076
# subject enrolees	28,849	27,327	
Subject weighting	1	2	
Weighted subjects	28,849	54,654	83,503
Cost/subject enrolee	550.17	292.59	381.58
Overheads	131.44	77.02	95.82
Gross Cost/weighted subject enrolee	681.60	369.62	477.41
Income/weighted subject enrolee	131.21	95.23	107.66
Net cost/weighted subject enrolee	550.40	274.39	369.75
# students	13,176	14,628	27,804
Cost/student	1,204.59	1,093.21	1,145.99
Overheads per student	287.78	287.78	287.78
Gross cost/student	1,492.38	1,380.99	1,433.78
Income/student	287.28	355.79	323.32
Net cost/student	1,205.10	1,025.21	1,110.45

However, the position changes if only 80 per cent of the "other" overhead costs are charged to the ASEP. This results in lower and arguably more realistic unit costs in the ASEP programme (Table 6.28).

Table 6.28: NAMCOL unit costs per subject enrolee and per student, 2007-2008 budget estimate, assuming only "other" business-sustaining net costs are charged against the ASEP programme (Scenario 2)

	JSC	NSSCO	All secondary
Identified Expenditure	15,871,722	15,991,479	31,863,201
Overheads apportioned	1,524,964	1,693,016	3,217,980
Total costs carried	17,396,686	17,684,495	35,081,181
Identified Income	3,785,199	5,204,481	8,989,680
Net cost	13,611,487	12,480,014	26,091,501
# subject enrolees	28849	27,327	
Subject weighting	1	2	
Weighted subjects	28,849	54,654	83,503
Cost/subject weighted enrolee	550.17	292.59	381.58
Overheads per weighted	52.86	30.98	38.54
Gross Cost/weighted subject enrolee	603.03	323.57	420.12
Income/weighted subject enrol.	131.21	95.23	107.66
Net cost/weighted subject enrolee	471.82	228.35	312.46
# students	13176	14628	27804
Cost/student	1,204.59	1,093.21	1,145.99
Overheads	115.74	115.74	115.74
Gross cost/student	1,320.33	1,208.95	1,261.73
Income/student	287.28	355.79	323.32
Net cost/student	1,033.05	853.16	938.41

In her report, Dr. Marope pressed for an analysis of NAMCOL's costs per Full-Time Equivalent (FTE) student. Godana and Ogawa, in their background paper³⁸⁰ to Marope's study, argued, "As FTE is central for cost-effectiveness analysis and for the allocation of resources to NAMCOL, the absence of an agreed principle for calculating FTE is highly unsatisfactory. It is imperative that the determination of FTE and principle of funding based on subsidy per FTE is undertaken as a matter of urgency". This statement is highly dubious. Within Namibia, it does not really matter what measure is used to allocate resources to NAMCOL, and to compare the efficiency of NAMCOL with the formal system, provided that the approach works. In Namibia, both purposes are served by the unit cost per subject measure.

Naturally, those researchers who see the FTE measure as a valid basis for making international comparisons of the cost per student will tend to favour the cost per FTE measure, but as we argue elsewhere, differences in local prices make such comparisons meaningless. Much better is to establish the relative costs of different approaches within the same country in monetary terms,

³⁸⁰ Tekaligne Godana and Keichi Ogawa, The cost and financing of education and training, Report 07/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-PO78682-ESW, §4.2.10.

using whatever measure is appropriate, and then make international comparisons using a currency-fluctuations neutral measure such as the Efficiency Ratio proposed by us.

It is now possible tentatively to compare the costs of NAMCOL with the formal secondary education system (Table 6.29) and to determine an Efficiency Ratio for NAMCOL.

Table 6.29: Unit costs per subject-enrollee and per student, formal secondary school system and NAMCOL, based on 2007-2008 budget

	Formal secondary school system						NAMCOL					
	Subject load		Cost (NA \$)				Subject load		Cost (NA \$)			
	JSC	NSSCO	JSC	NSSCO	All	JSC	NSSCO	JSC	NSSCO	All		
Cost per student			5,346.12	5,346.12	5,346.12			1,320.33	1,208.95	1,261.73		
Cost per subject												
Actual load	8.81	5.88	606.82	909.20	n/a	2.19	3.74*	603.03	323.57	n/a		
Theoretical maximum	9.00	6.00	594.01	891.02								

* Equivalent subject load

By dividing the unit cost in the NAMCOL by the unit cost in the formal system, one can work out the Efficiency Ratio, where a value greater than 1.0 indicates that NAMCOL is less efficient than the formal system, and a value less than 1.0 indicates that NAMCOL is more efficient than the formal system. As Table 6.29 shows:

- The cost per JSC student head at NAMCOL is NA \$1,320.30, compared with 5346.12 in the formal system. The Efficiency Ratio is thus 0.247.
- The Efficiency Ratio per student at the NSSCO level is 0.226.
- The Efficiency Ratio per student overall is 0.236.

As the table shows, the cost per student head at NAMCOL is much lower than the cost per student in the formal system – with NAMCOL costs being roughly one quarter (23.6 per cent) of the cost per student head in the formal system.

As far as subject enrolments go:

- The cost per JSC subject-enrolment at NAMCOL is NA \$603.03, compared with 606.82 in the formal system. The Efficiency Ratio is therefore 0.994.
- The Efficiency Ratio per NSSCO subject enrolment is 0.356.

As the table shows, the efficiency per student is not carried over to the cost per subject at the JSC level, where the costs are very nearly the same. However, because NAMCOL's students do the full two-year Grade 11 and Grade 12 curriculum in a single year at the NSSCO level, the Efficiency Ratio at this level is 0.356 – that is, NAMCOL costs just over one-third the cost of the formal system at this level.

One final question remains: can these results be scaled up to calculate the NAMCOL's unit cost per FTE student, as Dr. Marope would like? The answer is, unfortunately "no", at least at present, because it is not just a question of multiplying up the cost of taking say 2.19 JSC subjects to work out with a cost for taking six or nine subjects. As explained, there is a distinction between course

costs, indirect common costs and apportioned business sustaining costs. Because NAMCOL students progress more slowly (i.e. take fewer courses per year), a full-time student equivalent load in NAMCOL would arguably carry two or three years' worth of indirect common and business sustaining costs as well as the "direct" subject costs. The present state of activity costing in NAMCOL does not allow one to do this calculation.

6.13 Dr. Marope's 2005 assessment of NAMCOL

In 2005, Dr. Mmantsetsa Toka Marope produced a report – *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*, which was published as Africa Region Human Development Working Paper Series No. 84 by the Human Development Sector, Africa Region of the World Bank. Although the World Bank's standard disclaimer is made that the findings, interpretations and conclusions of the report are those of the author, Dr. Marope, and that the Bank does not guarantee the accuracy of the data and information in the document and accepts no responsibility for any consequences of their use, the mere fact that the report has been published by the Bank is likely to give the report a degree of status that, at least in respect of its comments on NAMCOL, it does not deserve. This is particularly worrying given that, in section 6.32 of her report, Dr. Marope concludes:

“6.32 Considering that the performance on national examinations is lower for NAMCOL’s students, that teaching time per subject is much less, that instructional materials are more expensive, and that the unit cost is not much lower than for school-based secondary education, the Ministry [of Education] may want to reconsider the future focus and orientation of NAMCOL. Improving the quality and coverage of regular secondary education may be a more cost-effective option than NAMCOL”³⁸¹

Dr. Marope argues that with improved quality leading to better performance in secondary school examinations and hence less demand for avenues to resit the examinations, NAMCOL could be re-oriented to focus on lifelong learning opportunities for adult learners. In these circumstances:

“NAMCOL can then serve as an important vehicle for adult and continuing education, rather than a costly prolongation of secondary schooling.”³⁸²

Given these comments, it is important to examine carefully the claims made by Dr. Marope, especially as NAMCOL continues to provide avenues to education betterment that the formal system does not as yet provide. This is especially true at the senior secondary level where the formal system lacks the capacity to allow more than about 45 per cent of people to continue with their education. Indeed, the generally negative approach that Dr. Marope takes to NAMCOL seems strangely at odds with some of the statements in the educational background paper to her published report which, for example, states among other things:

“The data thus indicate that NAMCOL represents a significant alternative route for gaining junior secondary certificates.”³⁸³

³⁸¹ Mmantsetsa Toka Marope, *Namibia Human Capital and Knowledge Development for Economic Growth with Equity*, Africa Region Human Development Working paper Series No. 84, Human Development Sector, Africa Region, The World Bank, 2005, §6.32, p. 84.

³⁸² Ibid. §6.32, p. 84.

³⁸³ Mmantsetsa Marope, Keiichi Ogawa, Albert Tuijnman, Charmaine Villet, *Adapting the General Education System to Better Support Namibia’s Transition to a Knowledge-based Economy*, Report No.

6.13.1 Commentary on Dr. Marope's report

What follows is a detailed commentary on Dr. Marope's report as it pertains to NAMCOL. In essence the comments indicate considerable misunderstanding and at times ignorance of NAMCOL, leading to conclusions whose worth is dubious if not positively wrong.

Marope (2005)	Judgment	Commentary
§3.8 (p. 21)	NAMCOL delivers both face-to-face and distance education programmes	<p>FALSE</p> <p>NAMCOL offered a face-to-face alternative afternoon/evening school, but from 1999 in four regions, and since 2003 in all regions, all students have studied at a distance using NAMCOL's study materials either (a) as Contact students, in combination with weekly tutorials (during the 1999-2002 pilot phase, 4 hours per week, and since 2003, 2 hours per week) or (b) as Non-contact students with no weekly tutorials, but with an opportunity to attend one-week vacation workshops twice a year.</p> <p>The Working Paper on which the Education Sector Survey of Marope's report is based³⁸⁴ was produced in the period May to July 2003 (see properties of electronic version) so NAMCOL's new open learning system had been in place for some several months, and in planning since the previous year. It is noteworthy that NAMCOL says that not one member of Marope's team visited NAMCOL at any time during the conduct of the World Bank studies.</p>

05/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-PO78682-ESW, paragraph 4.3.46.

³⁸⁴ Mmantsetsa Marope, Keiichi Ogawa, Albert Tuijnman, Charmaine Villet, *Adapting the General Education System to Better Support Namibia's Transition to a Knowledge-based Economy*, Report No. 05/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-PO78682-ESW.

§3.8 (p. 21)	NAMCOL provides a second chance to youth who could not attain high passing grades in the formal system. It also provides for youth and adults who missed a chance to enrol in school.	TRUE	In practice, most NAMCOL students have attended a regular secondary school and are trying to improve their grades having failed to get an A to C grade in the formal system.
§3.16 (p. 24)	“NAMCOL enrolment increased from 5,600 to 32,400 in 2002”	FALSE (though not a significant issue)	NAMCOL was established in April 1998. Programmes prior to that date were the responsibility of the relevant Ministry. (This is acknowledged in the background paper on the education system. ³⁸⁵)
§3.17 (p. 24)	Most of NAMCOL’s learners (87 per cent) are aged between 17 and 30 with a strong representation of 20-24 year olds. Over two thirds are women.	TRUE	
§ 3.20 (p. 25)	References to South Korea as a comparator nation to Namibia	Comment	But there is no mention of the role the Korean Air Correspondence High School played in secondary education in Korea – one very similar to the role NAMCOL is playing.
§3.51 (p. 38)	Comparison of full-time IGCSE candidates graded A-C and A-G, and JSC candidates graded A-C and A-G (2002 examinations), with part-time candidates	SLOPPY	The reference in §3.51 to “NAMCOL’s full-time and part-time candidates” is wrong: NAMCOL itself had (and has) only part-time students. The explanatory note in NAMCOL’s <i>Statistical Digest 2002</i> , which is the source of Marope’s table, makes this clear (pp. 4, 23). What is meant are the full-time candidates in the formal system. No mention is made of the curriculum differences, i.e. NAMCOL candidates

³⁸⁵ Mmantsetsa Marope, Keiichi Ogawa, Albert Tuijnman, Charmaine Villet, *Adapting the General Education System to Better Support Namibia’s Transition to a Knowledge-based Economy*, Report No. 05/05/03 of the Human Capital and Knowledge Development for Economic Growth with Equity study, EW-PO78682-ESW), para. 4.2.16.

			<p>do not take the same range of courses as full-time students and not all the subject examinations are comparable (NAMCOL language courses are different).</p> <p>No mention is made of the fact that not all the part-time students listed by the DNEA are actually NAMCOL students</p>
§6.27 (p. 83)	Estimating the unit cost at NAMCOL is complicated	TRUE, but ...	<p>... not necessarily for the reasons cited by Marope. The greatest impediment has been the traditional approach to budgeting, rather than an activity-based focus. It is extraordinary that Marope totally ignored the funding formula, which after all provides one way of comparing unit costs.</p>
§6.27 (p. 83)	An accurate calculation of full-time equivalents (FTEs) is very difficult because of the mix of face-to-face and distance modes of delivery	WRONG	<p>From 1999 in four regions, and from 2003 in all regions, none of NAMCOL's students were studying face-to-face. Data on the numbers studying by mode was available and could have been used to calculate an FTE for each group.</p>
§6.27 (p. 83)	As FTE is important for cost-effectiveness analysis, and for the allocation of resources to NAMCOL, the absence of an agreed principle for calculating FTE is highly unsatisfactory. This must be fixed as a matter of urgency.	DEBATABLE UNTRUE	<p>Other measures apart from FTEs can be used to analyse cost-effectiveness: for example, student-courses and student hours.</p> <p>Whether it satisfactory or not, there is an agreed method for establishing an FTE number of NAMCOL students built into the NAMCOL funding formula agreed between the Ministry and the NAMCOL Board. This agreement is based on the number of being be divided by 8.81, and the number of IGCSE subject enrolments being divided by 5.88. The divisors used are based on empirical evidence regarding the mean number of subjects taken by learners in the formal system.</p>

		AND ...	More significantly, the use of the FTE measure does not solve the problem of making international comparisons in situations where foreign exchange values fluctuate and local price structures are very different.
§6.28 and Table 6.13 (p. 83)	<p>Marope adopts “the same principle as the calculation of FTE in higher education: a full-time Grade 10 takes an average of nine subjects, a full-time Grade 12 student takes six subjects in the school year”.</p> <p>The FTE numbers for JSCE and HIGSE (sic.) ...</p> <p>... candidates are obtained by dividing the subject entries for the year by 9 and by 6, respectively.</p> <p>It is unclear whether Marope, in calculating the cost per learner in the formal system (see Table 6.13), used (a) the budget for, as opposed to actual expenditure used, on the secondary system; and it is unclear what adjustments were made to the raw figures to get nearer the full costs of secondary education</p>	<p>UNTRUE</p> <p>SLOPPY</p> <p>WRONG AT IGCSE LEVEL</p> <p>LACK OF CLARITY AS TO METHODOLOGY REGARDING FULL-TIME COSTS</p>	<p>The 9/6 subject load is the theoretical load. In practice students in the formal system take slightly fewer subjects, on average.</p> <p>Relatively few senior secondary students take the HIGCSE examination in Namibia, and none at NAMCOL do (or did). The reference should be to the IGCSE.</p> <p>It is questionable whether 9/6 are the correct subject loadings to use. Also Marope does not understand that each course enrolment at the IGCSE level at NAMCOL studies the full Grade 11 and Grade 12 curriculum in a single year. Formal students taking an IGCSE subject study one curriculum year times two years.</p> <p>At the primary level, expenditure has exceeded the budget in recent years, whereas at the secondary level there has tended to be an underspend. Using budgeted figures would over-estimate the cost per student in the formal system, at least since 2000/2001. Using published secondary education costs (Min Division 05 figures) will underestimate the costs of secondary education. It is not clear what adjustments have been made.</p> <p>The Fifteenth Day statistics are reckoned to overstate enrolments in secondary schools by about 2.5 per</p>

	<p>and (b) the Fifteenth Day statistics collected on the fifteenth day of the school year, or the more accurate figures collected in August for the EMIS statistics.</p>	<p>ARITHMETIC ERROR</p> <p>OMISSION</p> <p>SOURCE OF FIGURES UNCLEAR</p>	<p>cent on average – though the distortion in particular years can be much greater than this. This would tend to under-report unit costs in the formal system³⁸⁶.</p> <p>In Table 6.13, the total student numbers for 1998 is 20,018 (9504 JSC + 10439 IGCSE + 75 CED), not 20,167 as given.</p> <p>Marope's calculations omit the candidates who sat the public examinations in May/June. She thus underestimates the number of national IGCSE candidates in every year. The Oct/Nov exams accounted for 82 per cent of sittings in 1998, 79 per cent in 1999, 87 per cent in 2000 and 90 per cent in 2001, respectively.</p> <p>The cost per learner in secondary schools figures provided in Table 6.13 (p. 83) cannot be reconciled with costs derived by Du Vivier using MOE budgetary data. Du Vivier estimates that Marope's figures underestimate unit costs³⁸⁷.</p>
§6.29 (p. 83)	<p>... given that about a third of JSCE and about two-thirds of HIGCS students are in distance learning, the FTE could be adjusted.</p> <p>NAMCOL argues that the provision of education through distance teaching mode is not necessarily cheaper.</p>	<p>WRONG</p> <p>NAMCOL STATEMENT TRUE, BUT IT ALL DEPENDS ...</p>	<p>No HIGCSE (nb acronym) students are studying at a distance.</p> <p>Distance teaching is not necessarily cheaper than face-to-face teaching, though it may be. Reasons why it may not be cheaper, and factors that will tend to help it become more efficient, are complex and explored in Chapter 2 of this work.</p>

³⁸⁶ Ed Du Vivier, *Financing NAMCOL into the Future: A Study of the College's Efficiency, Cost-Effectiveness, Fee Structure and Funding Formula*, 27 March 2007, Section 1.1.

³⁸⁷ Ibid., Section 1.1.1.

	However there is no precise information on the relative costs of the two modes of delivery, ... and therefore, the FTE estimate could not be refined.	TRUE AT THE TIME (2002, 2003) BUT	It is arguable that this misunderstands the nature of the distinctions between NAMCOL's teaching systems in 2002 and 2003 – and arguable that with all NAMCOL's students being part-time, the difference between the modes in FTE terms would be minimal.
§6.30 (p. 84)	Comparison of the cost per FTE at NAMCOL with the per learner operational cost in full-time secondary education, suggests that NAMCOL is more costly than regular schooling.	HIGHLY MISLEADING	The exclusion of capital costs is highly misleading. One of the cost advantages of distance education is that classrooms and per school administrative facilities are not required. Where classrooms are used for face-to-face tuition, most systems use existing facilities in out of school hours, thus maximising their efficient use. The Millennium Challenge Account: Namibia document produced by the National Planning Commission in 2007 ³⁸⁸ estimates that the cost of providing a new school block with three classrooms would be NA \$325,000, together with NA \$480,000 (sic!) to furnish and equip three classrooms. If the building costs were annualised over 30 years and the furniture and equipment over 10, the annualised cost would be NA \$58,833. Given a capacity of 105 pupils per block, the annual cost would be NA \$555 per pupil. Although we have some doubts about this figure, a capital and maintenance cost of NA \$400 per pupil seems not unreasonable. Note that NAMCOL does pay the schools it uses an amount for maintenance and running costs. This cost will be included in NAMCOL's budget contribution.

³⁸⁸ Office of the President, National Planning Commission, *Millennium Challenge Account: Namibia*, Windhoek, Office of the President, 2007, pp. 73-75.

	Other costs		<p>Marope took no account of the cost of hostel accommodation, which affects secondary education costs in particular.</p> <p>As an autonomous para-statal body, NAMCOL incurs certain costs not incurred by the MOE but carried by other ministries, as well as having to buy some services in the open market at a market price higher than that paid within the government service. The cost of the formal system is thus subject to a number of hidden subsidies. Marope makes no allowance for these³⁸⁹.</p>
§6.30 (p. 84)	In 2001, 13.6 per cent of the scripts for NAMCOL candidates were incomplete compared with 1.2 per cent for full-time candidates	TRUE, but ...	Note that not all the examinations are comparable: It is thought that part of the poor performance by NAMCOL students on language courses (both English as a second language and Namibian languages as a native speaker) arises from the fact that at the JSC level, these courses are examined as literature rather than oral courses.
§6.30 (p. 84)	The percentage of graded subjects (i.e. A to G) was lower at NAMCOL (79.4 per cent) than for full-time schooling (89.2 per cent)	TRUE, but ...	Marope's focus on A to G hides the fact that with regard to progressing to tertiary education or into a government job, the only grades that count are A to C – and the formal system is not very good here either (though it is admittedly better than NAMCOL). However, NAMCOL is teaching a group of students from which the best and the brightest have already been creamed off when they passed their formal (full-time) examinations ³⁹⁰ .

³⁸⁹ Ed Du Vivier, *Financing NAMCOL into the Future: A Study of the College's Efficiency, Cost-Effectiveness, Fee Structure and Funding Formula*, 27 March 2007, Section 1.1.

³⁹⁰ See also Ed Du Vivier, *Financing NAMCOL into the Future: A Study of the College's Efficiency, Cost-Effectiveness, Fee Structure and Funding Formula*, 27 March 2007, Section 1.3, who argues that “it is entirely spurious for Marope and her colleagues to criticise the College for the poor performance of its learners in public examinations relative to those in the formal education system as this is not comparing like with like”.

§6.30 (p. 84)	As almost all NAMCOL candidates would already have gone through full-time secondary schooling, part of their performance can be attributed to their learning prior to joining NAMCOL. Recorded pass rates may therefore be an overestimate of NAMCOL's output efficiency	UNPROVEN AND NOT GENERALISABLE AND ...	<p>The one fairly accurate estimation of the proportion of NAMCOL students who were resit candidates as against first-time secondary students relates to 1998 when 63.2 per cent of JSC subject enrolments with NAMCOL were resit entries, and 36.1 per cent of IGCSE subject enrolments were resit candidates. So over one-third of JSC and nearly two-thirds of IGCSE candidates were not resit entries (see NAMCOL, <i>Statistical Digest</i>, 1998, p. 5)³⁹¹.</p> <p>... even if one accepts that part of the value of NAMCOL's students on entry derives from their studies in formal system, another way of putting it would be to say that since the formal system has not allowed JSCE candidates aged 16 or under who fail to gain the requisite number of passes (6) at A to C grade, and a pass in English, and since it also will not allow IGCSE candidates who fail to get the requisite number of passes (6) at A* to C grade, to resit their examinations, what NAMCOL does is to pick up the students the formal system has failed and try, through additional investment in those students, to make sure that the investment in formal secondary education is not wasted.</p>
§6.31 (p. 84)	The amount of teaching time per subject received by NAMCOL students is much less than that received by full-time students in the formal secondary schools.	DEMONSTRATES IGNORANCE OF DISTANCE EDUCATION MODALITIES	The whole point of distance education, apart from opening up possibilities for individuals unable to attend a class or attend classes in school hours, is that it changes the production function of education by substituting capital (in the form of materials) for labour in form of teacher time in the classroom. The cost structure of distance education is therefore radically different from face-to-face teaching in classrooms.

³⁹¹ Ed Du Vivier, *Financing NAMCOL into the Future: A Study of the College's Efficiency, Cost-Effectiveness, Fee Structure and Funding Formula*, 27 March 2007, Section 1.3.1

			<p>As a direct result, much of the student's learning time is spent reading and studying texts and other materials. This study time has equal value to listening to a teacher expound content in a classroom and is arguably a more efficient way of transferring information than lectures and classroom expositions. Distance education that incorporates some face-to-face teaching also includes time for dialogue to take place.</p> <p>The real comparison is between distance students' total study time (reading/listening to materials, doing assignments, preparing for, participating and following up on face-to-face sessions), and the study time of traditional students.</p>
§6.31 (p. 84)	Instructional materials are also a bit more costly, as they are meant to be used in lieu of face-to-face teaching.	NO EVIDENCE GIVEN FOR THIS STATEMENT	<p>Distance education substitutes capital (in the form of materials) for labour in the form of teacher time in the classroom. Moreover, materials are generally used for several years so their development costs are annualised over the number of years they are used. It is only the costs of running off copies of the texts that are truly recurrent costs. In almost all distance education systems, texts prove to be a cheaper way of educating students than face-to-face teaching, unless the number of learners is very small.</p> <p>Also, where face-to-face teaching is offered, the tutors delivering it are usually paid at casual rates and have none of the employment benefits of core members of staff.</p> <p>So for any system with a high number of learners – such as NAMCOL has – text is likely to be cheaper than teaching in the formal system. This will be true of the teaching system as a whole provided expensive media are</p>

		STATEMENT A <i>NON SEQUITUR</i>	not used and even where some face-to-face support is offered. In any case, the statement is a <i>non sequitur</i> . There is no causal relationship between materials being used in lieu of face-to-face teaching, and their cost.
§6.32 (p. 84)	"Considering that the performance on national examinations is lower for NAMCOL's students, that teaching time per subject is much less, that instructional materials are more expensive, and that the unit cost is not much lower than for school-based secondary education, ..." "	TRUE TOTAL LACK OF UNDERSTANDING OF NATURE OF DISTANCE EDUCATION DEBATEABLE AT BEST ONLY PARTIALLY TRUE	As this paper makes clear, this is true. Much of the "teaching" in distance education is done through instructional materials. Face-to-face teaching in distance education thus assumes a different role – being supportive of and supplementing the teaching done through the materials. The comment demonstrates ignorance of the nature of distance education. (See above, comments on 6.31.) Whether or not this is true will depend on the cost of the materials, annualised over the number of years they are used, with the committed cost element of the materials spread across the number of students taking the subjects, and on the other hand, the cost of teachers. (See above, comments on 6.31.) As noted, this is untrue in respect of per student costs, and only partly true in the case of unit costs per subject enrolment.
§6.32 (p. 84)	Marope suggests that NAMCOL devote itself to lifelong learning and adult and continuing education.	AN EXTRAORDINARY STATEMENT	... given that a minute proportion (under 0.05 per cent) of NAMCOL's students are aged 16 or under (the statutory school leaving age) and over 60 per cent at least are older than 20 years of age.

		<p>OR alternatively it suggests the need for NAMCOL to move out of the secondary education market into other markets</p>	<p>There is a case for NAMCOL to withdraw from junior secondary education when universal primary education has been achieved in Namibia, provided there is no emergent demand from adults for JSC courses. The same could eventually be true of senior secondary education. NAMCOL is already diversifying in professional studies and is likely to develop further new markets in the future. It may eventually withdraw from secondary education altogether.</p>
--	--	--	--

6.14 Some Conclusions

In contrast to many open schools, and in spite of its formal remit, NAMCOL does not actually provide mass education to children and young adults frustrated by the inability of the secondary school system accommodate them – although, given the fact that the NER in the formal senior secondary school system is relatively low, this is a role that it could play at Grades 11 and 12. What NAMCOL does do is to provide individuals who have failed to get the necessarily grades A to C in the formal system with a chance to retake subjects and thus try to improve their performance so that they can progress academically and/or gain the necessary qualifications for a job – and particularly a government job. Whether this role would continue if the formal system opened itself up to more and older repeaters at Grades 10 and 12 is an open question, but given the age of the majority of NAMCOL students, the likelihood is that at the both junior and senior secondary level, it would still have a role unless and until the formal system manages to increase the proportion of students who pass with an A to C grade.

That relatively few of NAMCOL's students actually make the grade is disappointing and a cause for concern. Of course, NAMCOL does increase the number of people with the coveted qualifications at grades A to C by some ten per cent. It does so notwithstanding the fact that the vast majority of the students who enrol with it have already failed, or been failed by, the formal system. Yet if only it could improve the performance of those who gain a grade D to G pass, and get them into the A to C band, it could do so much better. As the Effectiveness Ratio shows, the formal system is not that effective, and NAMCOL performs less well than the formal system. If it did, then more of its secondary graduates would do better than is now the case. Even so, it's noticeable that whereas only one in ten of NAMCOL's students have a job, Fentiman's Tracer study found that over one in two of the ex-students had been or were employed. That is positive success of a kind. And, for some of those who succeed, tertiary education and well-paid jobs beckon. At the level of the individual, these are successes to be celebrated.

The success of NAMCOL's pedagogic system rests – like all distance education systems – on three key factors: the quality of its course materials, the quality of its student support sub-system and the quality of its logistics. The quality of its course materials is not in doubt: the materials, subject by subject, are good to excellent – and recognised as such, given the extent to which they are used by schools in the formal system and bought by formal system students. Logistically too the College performs well: the turnaround time on assignments (the elapsed time between a

student handing an assignment in for marking, and getting the marked and commented on script back) is on a par with the best of correspondence systems. This is important as research shows that poor turnaround time is correlated with high drop-out rates. NAMCOL's management systems and its student support systems are well-designed and function well. Students are registered efficiently; the materials get out to them on time; assignments are handled expeditiously.

If there is a question mark, it hangs over the effectiveness of the student support system. What measures might be taken to improve the effectiveness of the support systems so that a higher proportion of students achieve their aim of getting an A to C grade in the national examinations?

NAMCOL is a lean organisation. It has a small core staff, relative to the number of students it supports. It makes use of peripheral staff who are employed on contracts for service and who are paid for the work they do – neither more nor less. Economically it is very efficient, in terms of its unit costs per student, in comparison with the formal system. In terms of its unit costs per subject enrolment, its "two academic years crammed into one calendar year" approach at the NSSCO level makes it very efficient compared with the formal system, while the unit costs per subject at the JSC Grade 10 level are on par with those in the formal system.

Overall then, and putting aside the disappointing performance of its students in the JSC and NSSCO/IGCSE examinations, the College is an impressive distance/open learning system. The focus for its development plan seems clear: it must work to improve student results in the public examinations.

7 OVERALL CONCLUSIONS AND POLICY ADVICE

7.1 Why bother with Open Schooling at the secondary level?

This study is predicated on the belief that Open Schooling may offer a potential solution to the looming crisis in the provision of places at secondary education level. Indeed, given the cost of setting up conventional schools, Open Schooling may be the only way of meeting what the Commonwealth of Learning anticipates will be a tidal wave of youngsters demanding access to secondary education. But is there actually a crisis in supply, such that demand will be frustrated?

We believe that there is and that a tidal wave of demand will indeed emerge for two reasons:

- As a result of the success countries have in achieving Universal Primary Education by or at least shortly after 2015, and
- As the natural outcome of growth in educational systems as world population rises from roughly 6.6 billion³⁹² to an estimated 9.4 billion by 2050.³⁹³

The cost structure of the formal education system is such that many countries will find it impossible financially to follow Universal Primary Education with Universal Secondary Education and Universal Higher Secondary Education. Also, secondary schools need trained and well-educated teachers – ideally teachers who have studied the subjects they will be teaching at the tertiary level. All too often there are better paid opportunities for employment outside the education service, especially in certain crucial subjects such as mathematics, the sciences and computing. In any case, countries that are modernising their economies and attempting to engineer knowledge-based economies need the products of their higher education system to engage with the development of their new knowledge-based economies. So while schools will still need to attract a proportion of graduates from across the curriculum, there are very real reasons why the way schools operate should be changed so that they can operate with fewer – ideally better paid – subject-expert graduate teachers.

7.1.1 *The implications of not meeting demand*

Of course, it would be possible to ignore all this, leaving huge reservoirs of frustrated demand, but this would be, in our view, a risky strategy because:

- All the evidence points to the fact that individuals need to have completed at least higher secondary education if they are to participate meaningfully in economic activity, and
- A reservoir or frustrated demand will have serious political implications in those countries that fail to educate their young people.

7.2 Defining "Open Schooling" and "open schools"

Throughout this study, we have discussed open schools within the context of the broad definition first laid out in Section 2.1. COL's definition of Open Schooling focuses on what one might call

³⁹² US Census Bureau, World POPClock Projections, accessed 7 October 2007:

<http://www.census.gov/ipc/www/popclockworld.html>

³⁹³ US Census Bureau, Total Midyear Population of the World: 1950-2050,

<http://www.census.gov/ipc/www/idb/worldpop.html>, accessed 7 October 2007.

the *technical means* by which Open Schooling is delivered; that is, "the physical separation of the school-level learner from the teacher, and the use of unconventional teaching methodologies, and information and communications technologies (ICTs) to bridge the separation and provide the education and training"³⁹⁴. For COL, "the most common scenario is that the learners study specially designed open learning materials on their own - at home, in their workplace, wherever it is convenient for them - and then they meet together with a facilitator on a regular basis"³⁹⁵.

The openness of the system refers to the lack of restrictions as to who may study, what they study and how much they study, as much as to the fact that by its very nature technology-based learning tends to get round the time- and place-based restrictions of the scheduled classroom experience to open up access to those who cannot attend school at a fixed time and place. It is this openness that makes distance-taught courses so attractive to those whose life and work patterns make it difficult or impossible to attend courses taught face-to-face.

COL's definition of Open Schooling is in our view wholly adequate as a technical description of the way in which an open school goes about the business of teaching and developing an environment within which learning can take place. There is, though, another way of looking at Open Schooling, and that is to try to define the role of an open school in relation to conventional schools.

7.2.1 A broader definition of Open Schooling

It is our view that three significant factors differentiate between conventional systems and non-conventional systems. These are:

- **Mode:** This refers to the methods or means used to teach and within which learning takes place. What distinguishes distance education from conventional approaches to education is the separation of the learner physically for much or most of the time from the person providing the content that is to be taught, and the use of some form of media (text, audio, video or computing) carried by some form of technology (print, teletext, radio, CD, television, DVD, CD-ROM or Internet) to bridge that gap. We wish to make clear that we do not rule out having some face-to-face teaching and interaction in distance education, just as we do not rule out some resource-based study and independent learning from face-to-face teaching. The difference is often one of degree. The key differentiating factor is perhaps that distance learners do not need to attend scheduled classes in a school. They can study when they want and where they want – often at home, sometimes in the workplace.
- **Markets:** In general, conventional schools are not open to people who are aged 20 and over. In contrast, distance education is often geared to the need of adults who both value the flexibility that it enables, and who are more likely to have the necessary motivation and perseverance for resource-based, independent learning. This does not mean that distance education cannot be used to teach children and youths: it can, especially if it relies on parents (in home schooling) and monitors/animateurs in remote classrooms.
- **Curriculum:** All too often the formal system is equated with an academic curriculum that is linked to expectations of progression to higher education. Such academic curricula are often wholly unsuitable for a proportion of the children and youths in the formal education system. These curricula also fail to provide what businesses often demand of

³⁹⁴ Commonwealth of Learning: <http://www.col.org/colweb/site/pid/3905>, accessed 19 April 2007

³⁹⁵ Ibid.

the school system – a steady stream of young adults who can enter their businesses and be trained on the job, through sandwich courses involving some form of release for education and training purposes, and through participation in distance education programmes (which have the advantage of shifting the time cost of education from the employer's time to the student's "recreational" time). Efforts to provide technical and vocational education within schools have, however, often led to a two-tier system in which the academic stream (and academic schools) are given a higher status than the technical-vocational stream (and technical and vocational schools), while many businesses – especially small and medium sized enterprises – find it difficult to invest in training programmes and/or worry that if they do so, they are merely spending money on young employers who will then be "poached" by other employers.

COL's definition focuses reasonably enough on the first of these – mode, methods or means. What the definition does is to make clear that open schools "look" different from conventional schools. But having a school that breaks through the boundaries of the campus, classroom and timetable opens up further possibilities – that this school will be used to teach different kinds of people and different kinds of courses.

Taking these factors into account, we can begin to devise a typology of open schools that take account of the way such schools fit in with the formal conventional school system. At the school level, the conventional norm (which is seen as part of the formal education system) is a classroom-delivered education following national or sub-national (e.g. state) public examination board approved curricula for the achievement of standard qualifications by children and youths aged roughly between 5 to 7 and 18 years of age.

In contrast, an open school could, if it chose, teach a different clientele – for example, adults who have no or few basic qualifications. It could also teach different kinds of courses – courses whose subject matter and content is not geared to the demands of the ladder of primary, secondary and tertiary ladder of the formal system, but to things that adults need or will find useful or interesting to know and learn about.

7.2.2 *An alternative or a complement to formal education*

Where Open Schooling is aimed at adults who missed out on their schooling, the argument is sometimes made that adults need to study a different curriculum – one more suited to their needs than that aimed at those of school age. Such considerations may lead to the development of an alternative curriculum. Such forms of Open Schooling can be seen as an *alternative* to the conventional formal system, and as such are classified as part of the non-formal education system.

Of course it may be that the demand for Open Schooling is not so much geared to the provision of an alternative curriculum for an alternative market, but rather to provide a supply of places teaching traditional subjects to children and young adults who cannot get into a conventional school. There are many countries where there simply are not enough places in conventional schools to meet the level of frustrated demand that exists for education. In these circumstances, what is provided is not so much an alternative to the formal primary and secondary experience but a *complement* to the formal one that uses the mode of distance education to do this.

Two alternative approaches can therefore be envisaged:

- A **complementary Open Schooling system** offering the same curriculum for children and youths who have never been in a position to attend the formal, classroom-based school system or who, having attended the formal education system, have had to drop-out because they have had to start working or because their grades have been too poor for them to progress through the grades and various examination hurdles.
- An **alternative Open Schooling system** offering a different, more adult-relevant curriculum for adults who never had a chance to have or complete their formal education at school level (and perhaps some out-of-school youth, for whom an alternative curriculum – generally more vocationally-oriented – is seen as more appropriate).

7.3 Using technology in the classroom

For some, there may still be a question mark over the extent to which technology can be used to teach and learn from. Our own view is that this is no longer an issue – particularly now that people understand that it is not a question of using exclusively either technology or face-to-face teaching, but of blending technology and face-to-face support to provide an environment in which individuals can successfully learn, while at the same time reducing unit costs and increasing market coverage.

Nevertheless, it is worth reiterating the point that for many years, the evidence shows that technology has been used successfully to improve the quality of what happens in the traditional classroom and to enrich the school experience, by providing resource-based learning that can be used by untrained teachers and by trained teachers whose subject expertise lies in another discipline to that being taught.

Starting in 1923, for example, the British Broadcasting Company provided a school educational radio service, first in Kent and then nationally. The number of schools listening to the service rose steadily from 220 in 1924 to 9,953 in 1939³⁹⁶. The purpose of the service, which was to enrich the curriculum, was rather different to the use of radio in the Radio Matematicas project in Nicaragua where starting in 1975, the radio was the teaching input and the class teachers supervised post-broadcast exercises undertaken by the children. It was also different from the use of television in the large-scale Educational Television projects of the 1960s and 1970s in El Salvador, American Samoa, Niger and the Ivory Coast, where the argument was that "large scale television projects could bring about dramatic improvements in education"³⁹⁷.

If the evidence for the use of instructional television is mixed – not least because of its relative expense – the evidence in favour of radio is very positive. The Mauritius College of the Air project showed that teachers in secondary schools could support students following correspondence and radio courses³⁹⁸. In the Radio Matematicas project in Nicaragua, radio replaced the teacher as the source of instruction.

³⁹⁶ Michael Young, Hilary Perraton, Janet Jenkins and Tony Dodds, *Distance Teaching for the Third World: The Lion and the Clockwork Mouse*, London, Routledge & Kegan Paul, 1980, p. 17.

³⁹⁷ Ibid, p. 19.

³⁹⁸ Ibid, p. 47.

These early results are supported by more recent studies. All the evidence over the last 30 or so years shows that Interactive Radio Instruction approaches are both effective and efficient³⁹⁹. Equally, we believe that there is a growing body of evidence that points to the value of using computers in schools – as tools to do what cannot otherwise be done without a great deal of labour, as means of accessing information, as means of communicating with other people, and as a preparation for the world of work and the home in the 21st century. To fail to provide children and young adults with the ICT skills that they will need would be a gross dereliction of our duty as educators.

From our perspective, the use of media (and hence of the technologies that carry it) both to enrich the curriculum and to improve the quality of education within existing schools is important because it shows that technology can be used within schools:

- to enrich the curriculum,
- to support partially-trained subject teachers, and
- to provide subject teaching in schools that lack trained subject teachers.

In our view, there is sufficient experience and knowledge available to know that technology can be used to good effect to support schools.

7.4 Can technology be used to solve the schooling crisis at the secondary level?

The next question is therefore: can technology be used to solve the looming crisis in secondary education provision? There are two approaches to this question. One is to look to technology to provide a different kind of school altogether – one liberated to a large degree from the campus, the classroom and the timetable. The other is to transform our notion of what a school is so that we can have more schools covering more pupils at less cost.

We have no doubt that it is possible to use technology to teach adults who are motivated and prepared to learn independently on their own – in the home or elsewhere. But even adults may require help to get them started and acquire the skills of independent learning, and to motivate them to continue when the going gets tough. If this is true of adults it is also true of youths and children. However, the experience of the Australian Schools of the Air and of the Calvert School in the USA suggest that even quite young children can successfully be taught from resource-based learning packages with their parents' help and with the help of a remote teacher.. And from this essentially individual-child, home-based learning scenario, it is just a shift in emphasis to set up local centres where such students can go to study as a group with the help of local animateurs, resource-based learning and distant support from qualified teachers.

Given this, and given the evidence of successful applications, we have no hesitation in saying that technological approaches can be used to establish schools where no schools currently exist. The Mexican Telesecundaria project showed that technology could be used along with trained

³⁹⁹ Interactive Education Systems, *Interactive Radio Instruction (IRI)*, <http://ies.edc.org/ourwork/topic.php?id=15>, accessed 6 October 2007; The World Bank, Development Research Group, *Improving Educational Quality through Interactive Radio Instruction: A Toolkit for Policymakers and Planners*, March 2005, Human Development Sector, Africa Region, The World Bank, <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTAFRREGTOPEDUCATION/EXTAFRREGTOPDISEDU/0,,contentMDK:20618845~menuPK:1568672~pagePK:34004173~piPK:34003707~theSitePK:732264,00.html>, accessed 6 October 2007.

monitors to set up secondary schools in communities where such schools had never existed before.

The Republic of Korea set up the Korea Air-Correspondent High Schools in 1974 to provide education to an estimated 1.4 million high school age youths who were unable to attend secondary school. Other open schools exist in Bangladesh, Pakistan and China (where the open schools are part of the open universities) and in Indonesia⁴⁰⁰. These schools set up remote classrooms that students could attend to watch and listen to lessons, and where they could be helped to learn from the resources made available.

There are problems, however. Writing in 2000, Hilary Perraton noted that all too often open schools have tended "to attract the less-able students and have achieved poorer results than conventional schools", with the result that their "pass rates have generally been lower, sometimes much lower" and they have "lacked esteem", been "unloved not only by parents and children, anxious for a proper school, but by ministries of education", and "been starved of funds". Yet for Perraton, "the other side of this tarnished coin shows that we have developed models that can achieve success for at least a modest proportion of their students, and that may be of continuing significance where funding does not enable secondary education to expand in pace with demand".

Perraton goes on to note that resource-based learning is a sign of innovation and that technology (in whatever form) "can bring resources into the classroom, make learning more fun, raise quality"⁴⁰¹.

These judgments – based on a review of the evidence such as it is at the end of the last century – may point the way to a possible solution to the emerging crisis in secondary educational provision, but before we rush to conclusions, we need to consider the evidence that we have accumulated from the experiences we have analysed in India and Namibia.

7.5 Our results

7.5.1 Population and economy

The two open schools chosen for detailed consideration in this study are very different in size, and they operate in environments that are also very different. The estimated mid-year population in 2007 in India was 1,1 billion and in Namibia 2,1 million⁴⁰². In other words, Namibia had a population equivalent to just 0.0018 per cent of India's population. In 2007, an estimated 37.7 per cent of Namibia's population was aged under 15 compared with 31.8 per cent of India's. Those aged 15 to 64 constituted 58.6 per cent of Namibia's population and 63.1 per cent of India's. The 2007 estimated population growth rate in Namibia, at 0.478 per cent, is well below India's at 1.606 per cent. Although the fertility rate in Namibia is higher than in India (2.94 children born for each woman against 2.81 in India), life expectancy in Namibia at 43.1 years is well below India's 68.6 years⁴⁰³.

⁴⁰⁰ Hilary Perraton, *Open and Distance Learning in the Developing World*, London, Routledge, 2000, pp. 38-41.

⁴⁰¹ Ibid, pp. 55-56.

⁴⁰² US Census Bureau, International Data Base for India and Namibia, accessed through <http://www.census.gov/ipc/www/idb/summaries.html> on 7 October 2007.

⁴⁰³ Ibid.

Beyond startling differences in geographical size and size of population lie a host of other differences in history, culture, social structure, wealth distribution, growth rates and economic activity. In Namibia, a relatively high per capita Gross National Income and Gross National Product per head masks inequalities in income that are among the highest in the world (Section 5.1), while in India there are almost two economic systems – the urbanised and industrialised system of India, and the rural, village-based system of the *Bharat*. India has a highly diverse economy that encompasses both traditional village farming and modern agriculture, and both handicrafts and modern industrial processes. While about three-fifths of the labour force works in agriculture, recent years have seen significant growth in manufacturing industry. India is also capitalising on its large number of English-speaking educated people to become a major exporter of software services and software workers.

In contrast, the present economy of Namibia is heavily dependent on the extraction and processing of minerals for export, yet the mining sector employs only about three per cent of the labour force. About half the population depends upon subsistence agriculture where drought is a real problem.

7.5.2 Comparative national educational data

The open schools in India and Namibia operate in countries where education is highly valued. Data provided by UNICEF in the 2007 edition of its annual publication *The State of the World's Children* shows how the two countries contrast (Table 7.1):

Table 7.1: Comparative educational statistics for India and Namibia

Measure	India	Namibia	Definition
Adult Literacy Rate (Source: UNESCO Institute of Statistics)			%age of persons over 15 who can read and write
- Male (%)	73	87	
- Female (%)	48	83	
Gross Primary School Enrolment Ratio (Source: UNESCO Institute of Statistics)			The number of children enrolled in a primary level grade, regardless of age, divided by the population of that age group that officially corresponds to that level
- Boys	111	105	
- Girls	105	106	
Net Primary School Enrolment Ratio (Source: UNESCO Institute of Statistics)			The number of children enrolled in primary school who belong to the age group that officially corresponds to primary schooling, divided by the total population of the same age group
- Boys	90	76	
- Girls	85	81	
Net Primary School Attendance (Source: National Household Surveys)			Percentage of children in the age group that officially corresponds to primary schooling who attend primary school or higher
- Boys	80	78	
- Girls	73	78	

Gross Secondary School Enrolment Rate (Source: UNESCO Institute of Statistics)			The number of children enrolled in a secondary level grade, regardless of age, divided by the population of that age group that officially corresponds to that level
- Male	58	59	
- Female	47	66	
Net Secondary School Enrolment Rate (Source: UNESCO Institute of Statistics)			The number of children enrolled in secondary school who belong to the age group that officially corresponds to secondary schooling, divided by the total population of the same age group
- Male	--	39	
- Female	--	50	
Net Secondary School Attendance (Source: National Household Surveys)			Percentage of children in the age group that officially corresponds to secondary schooling who attend secondary school or higher
- Male	45	29	
- Female	36	40	

Source: UNICEF, *The State of the World's Children 2007: Table 5 Education*⁴⁰⁴

These figures differ somewhat from those provided by national bodies (see Tables 3.3, 5.13), but all sources agree that while progress towards universal primary education is good, a drastic expansion of secondary school opportunities is required if India's and Namibia's education systems are going to generate the requisite number of secondary level graduates able both to enter the labour market with requisite levels of knowledge, skills and attitudes, and to feed the higher education system with sufficient secondary school graduates in order to meet the countries' needs for graduates within their labour forces.

It is the scale of the challenges facing the countries that is different: India had 212 million primary school pupils and 89.6 million secondary school learners in 2002; Namibia had 409,000 primary school pupils and 156,000 secondary school learners in 2006 (Tables 3.5, 5.5). In India, just 39 per cent of the age group 14 to 18 years is in secondary school; in Namibia the Net Enrolment Rate at secondary level was 49.5 per cent in 2005 (Table 5.13).

If the achievement of Universal Primary Education in the foreseeable future is assured in both countries, it is only Namibia that may achieve Universal Higher Secondary Education without resorting to a massive expansion of distance-taught secondary education. Indeed, one of the justifications for the proposed transformation of NAMCOL into a distance teaching university with an expanded role in basic and sub-degree-level professional and vocational education and training, and basic information campaigns (on HIV/AIDS, for example) is precisely the likelihood that its traditional markets at junior and senior secondary level will dry up⁴⁰⁵. In India, on the contrary, all the evidence points to a continuing long-term role for NIOS.

⁴⁰⁴ Source: UNICEF, *The State of the World's Children 2007: Table 5 Education*

http://www.unicef.org/girlseducation/files/SOWC06_Table5.pdf, accessed 7 October 2007.

⁴⁰⁵ Professor Rumble: Interview with Mr H Murangi, Director of NAMCOL, 23 October 2007

7.5.3 Origins of open schools in India and Namibia

India's experimental Open School Project was established in 1979. This project was to be fundamentally different to the existing state correspondence schools in that it was designed to offer a parallel, non-formal, alternative system to formal schooling that would give a second chance to those aged 14 or over who had been unable to pursue their studies in the formal system⁴⁰⁶. Starting with an initial enrolment of 1,671 learners in 1981, by the end of the 1980s the Open School had moved beyond its initial focus on bridge (equivalent to elementary level schooling), secondary and life-enhancing courses, to cover the senior secondary level. It had also grown in size – by 1989 its enrolment exceeded 40,000 learners.

The success of the Open School Project persuaded the Union Government to establish the National Open School in 1989 to take on the task of reaching those who had dropped out of school or never been to school and who wished to study but were for a variety of reasons not studying in regular schools. The following year, the Government vested the NOS with the power to develop schemes of study and to register, examine and certify learners. Over the years, the role of the National Open School has developed to move beyond the provision of bridging courses, an alternative secondary/higher secondary curriculum and life-enhancing courses, to include from 1997-1998 the provision of vocational education. By then State Open Schools had been set up in a number of states. All of these schools have similar pro-poor mandates to that of NOS and hence differ fundamentally from the earlier generation of State correspondence schools.

In 2002, NOS was re-mandated to act as the national apex body for open schooling, and redesignated the National Institute of Open Schooling (NIOS) in recognition of its increased powers. NIOS is thus a very different kind of school to the norm in a number of respects:

- It is huge – far bigger than any traditional school ever could be.
- Structurally it is more of a federation of Accredited Institutes that act as its schools, rather than a school in itself. The AIs are coordinated through NIOS's Regional Centres which themselves depend upon the Headquarters where the curriculum are devised, the materials developed, and the system defined and organised.
- Unlike most schools, NIOS is both a teaching and an examining and accrediting body.
- Finally, as an apex body, NIOS plays a major part as a quasi-governmental agency in planning and coordinating a significant part of the Indian schools system.

Originally set up with the mission of universalising education, enhancing social equity and justice, and creating a learning society, the NIOS has sought to reach out to a market that includes school drop-outs and marginalised groups such as rural youth, girls and women, members of the Scheduled Castes and Scheduled Tribes, those with handicaps, and ex-servicemen. The years have seen a steady increase in the number of students enrolled in NIOS Accredited Institutes, rising from some 40,000 in 1990-1991 to 290,000 in 2006-2007. Over the years, NIOS' cumulative enrolment has now surpassed 1.5 million learners⁴⁰⁷.

Throughout NOS/NIOS's existence, various educational action plans, five-year plans and the National Policy on Education have stressed the key role that ODL can play in the educational

⁴⁰⁶ Ibid. p. 43.

⁴⁰⁷ NIOS, *National Institute of Open Schooling (NIOS): Precise Information*, <http://www.nios.ac.in/glance.pdf>, accessed 26 October 2007.

system in India – to the extent that the provision of open schools can be said to be deeply integrated into educational planning as a whole. As a direct result, NOS/NIOS has enjoyed the continuing support of the Union and state governments with the recognition that NIOS has a key role to play in successive five-year plans and educational action plans. At the same time, government grants have steadily declined from one-third of NIOS' income in 1990 to just over 2 per cent in 1995. The remainder of NIOS' income comes from student fees and examination fees.

The Namibian College of Open Learning (NAMCOL) was formally established in 1997 as a distance education college with the Ministry of Education. NAMCOL, which had the status of a department within the Ministry, took on responsibility for the existing distance education programmes within the country, including an apartheid-era teacher training programme leading to the award of the National Education Certificate (a programme that by 1994 was being run down). NAMCOL also took on responsibility for the operations of the Namibian Extension Unit, which from its establishment in 1981 until Independence had been meeting the needs of Namibian refugees in Zambia and Angola, and since Independence been providing courses within Namibia itself. It is this latter link back to the pre-Independence period that still resonates strongly with politicians and civil servants in Namibia, and secures for NAMCOL continuing support from government.

We cannot stress strongly enough the importance of stable and continuing political support for the successful initiation and sustainability of open school projects. As Dodd and Rumble⁴⁰⁸ showed in their study of successful and unsuccessful open university planning processes, political support and excellent (and by implication politically well-connected) institutional leaders are an absolute pre-requisite to progress in the setting up and long-term viability of what used to be regarded (but should no longer be seen as) non-traditional educational projects.

7.5.4 NAMCOL as a Complementary system to the Formal system

Distance education systems are often set up to address issues of equity – either those affecting current groups (for example, access to education by girls, or by members of particular social or ethnic or economic groups) or those affecting people in the past (typically, adults who lacked the opportunity to participate in education when they were of the relevant age).

In Namibia, the gender balance at the primary level is roughly 50:50. Girls predominate at junior secondary (53-54 per cent) and slightly at senior secondary (51 per cent) level (Table 5.9). NAMCOL is not, therefore, addressing gender imbalances in secondary school. Indeed, 65 per cent of NAMCOL's students are female (Table 6.9) and if there is concern, it is that males are not taking up the opportunities offered by NAMCOL to improve their qualifications. Secondly, NAMCOL is not reaching areas of Namibia that are not covered by the formal system. NAMCOL's tutorial centres are based in existing schools, and the proportion of NAMCOL student-courses by region roughly follows the distribution of the formal system's school population (Table 7.2).

⁴⁰⁸ John Dodd and Greville Rumble (1984) Planning new distance teaching universities, *Higher Education*, 13 (1), 231-54.

Table 7.2: Distribution of formal system school population and NAMCOL student courses by NAMCOL region, 2005.

Secondary Education	Total	Central	North-Eastern	Northern	Southern
Formal System					
Students	150,815	17,989	22,172	74,928	35,726
Regional %age	100.0	11.9	14.7	49.7	23.7
NAMCOL					
Student-courses	54,421	6963	6,755	25,547	15,156
Regional %age	100.0	12.8	12.4	46.9	27.9

Although 70 per cent of NAMCOL's 2006 students were aged over 20 (Table 6.10), compared with just 2.8 per cent of the formal school population, the vast majority of NAMCOL's students are aged 18 to 24 (25 per cent are aged 18 to 19, and 49 per cent are 20 to 24). This is fully consistent with what most students have told NAMCOL – that they enrol in with the College in order to improve their grades in particular subjects, with a view to getting their school certificates. More than nine out of ten of its students at the JSC level and four out of five at the IGCSE/NSSCO level are seeking not to study for the first time at these levels but to improve their grades and hence their job prospects⁴⁰⁹.

NAMCOL's role in the Namibian education system is to act as a safety net that "picks up" and helps a population roughly equivalent to 18.1 per cent of the conventional school population. NAMCOL picks up these repeaters because the formal system does not allow students to repeat their examinations. Under current rules, students are allowed to repeat just one of Grades 8 and 9 at the junior secondary level, but not – unless they are under 17 years of age – Grade 10 (Section 5.3). Senior secondary school examination candidates are allowed to resit their examinations in order to upgrade their results, but the formal system does not help them do this. If they wish to do it, then they must prepare themselves for the resit examinations through private study or through non-formal system structures such as NAMCOL.

NAMCOL is thus essentially complementary to the formal system – offering the same curriculum in preparation for the same examinations to students who, in the main, have already studied in the formal system and who are now trying to improve their grades or rectify past failure in particular subjects.

7.5.5 NIOS as an alternative to formal schooling

In contrast, NIOS, in conjunction with the various State Open Schools, can be described as offering an alternative system to formal schooling. The vast majority of NIOS's 290,983 (junior) secondary and senior secondary school students (Table 4.5) are out-of-formal-school learners and school drop-outs, working adults, housewives, learners from disadvantaged sectors of society and

⁴⁰⁹ This could conceivably underestimate the proportion of students studying to improve their grades. Dr. Alicia Fentiman found that nineteen out of twenty (95%) of the students she questioned in her Tracer Study said that they had enrolled in order to improve their "points" (grades) - Alicia Fentiman, *Tracer Study of former NAMCOL learners: Research Report*, Cambridge, IRFOL, Centre for Educational Research and Development, Von Hügel Institute, St Edmund's College, February 2007, Section 3.6. Consistent with this she found that the students took an average 2.5 subjects each.

learners living in remote areas of India. Of these, two out of three (68.7 per cent) are male and one out of three (31.3 per cent) are female.

The Indian education system as a whole is characterised by a gender imbalance, with a higher proportion of boys than girls enrolled in the system, but a recent study by Sushmita Mitra suggests that far from opening up more opportunities to girls and women, NIOS has since about 1994 been enrolling a smaller proportion of women than the formal secondary system⁴¹⁰. Mitra suggests that changes in the formal system including the introduction of free education up to secondary level with most States now providing secondary education free to female learners, the recruitment of female teachers and the availability of adequate toilet facilities for girls in schools may all have played a role in the rise in female enrolments as a proportion of all enrolments in the formal system. Mitra's study also shows quite considerable variation between the proportions of male and female students enrolled in NIOS, depending on the state within which Accredited Institution are located.

However, an interesting phenomenon to note is that in the present decade, female enrolments in the NIOS vocational courses has remained at par with those of the male students. It may be indicative of an emerging trend – that female students see a greater sense and purpose in education that promises economic independence and better life, pointing to a social change in progress and so to NIOS as a change agent.

Available data also shows that NIOS is offering a real alternative to school-aged children. As Table 4.7 shows, over 7 out of 10 (74 per cent) of NIOS's secondary school students are aged 15 to 20, and nearly nine out of ten (88.7 per cent) are aged 15 to 25. NIOS is reaching out to those who are using it as an alternative route to secondary education. In other words, NIOS is not acting as a second chance route for adults who were for a variety of reasons unable at an earlier stage in their life to study at secondary level. One reason for this is, we suggest, because in India distance education is so accepted as an alternative route to educational qualifications that it is actually the first choice route for many who wish to study at the same time as they work or are confined to the home.

7.5.6 Are the open schools doing enough?

Our research suggests that in Namibia, NAMCOL acts as a safety net for about one in five of the school population in Namibia, giving them the chance to repeat courses that the formal system denies them. Relatively few of NAMCOL's students are studying for the first time at this level.

At the junior secondary level, we can say with some confidence that the falling number of primary school graduates who enter NAMCOL's junior secondary school programme as their first choice almost certainly reflects the fact that most (roughly four out of five) primary school leavers manage to find places in conventional secondary schools in Namibia.

At the senior secondary level, however, we find it surprising that there are relatively few individuals starting their senior secondary level education at NAMCOL. After all, the real drop-out in secondary education comes between Grades 10 and 11 (see Table 5.11), hence one would expect demand for NAMCOL to rise at senior secondary level to absorb those who cannot gain entry to this level at a conventional school. With just one in three Namibians advancing to

⁴¹⁰ Sushmita Mitra, Gender and Open Schooling in India. Paper prepared for the Fourth Pan Commonwealth Forum on Open Learning, 2006, dated 25 October 2006, <http://pcf4.dec.uwi.edu/viewabstract.php?id=111>, accessed 26 October 2007.

secondary school, and fewer than half (47 per cent) of those who complete junior secondary school each year finding a place at a senior secondary school (Section 5.3), one might expect the Government to promote NAMCOL as an alternative pathway to the IGCSE/NSSCO examinations – not least to capitalise on NAMCOL's potential ability to provide senior secondary school places at a cheaper per capita cost than in the conventional school system. After all, among the most serious challenges facing Namibia is the lack of senior secondary education places and the urgent need to improve the quantity, quality and relevance of the output from the senior secondary level in order to address the shortages of skilled labour and enable Namibia to convert itself into a knowledge-based economy (Section 5.3).

But this has not happened. NAMCOL remains a rather significant but essentially second- tier line of defence against student failure within the school system. To the extent that the formal system has let students down when they fail the public examinations, NAMCOL exists to give them a second chance and to make good the deficiencies of the formal system.

Even so, one also has to ask, when the economic payback (in salary terms) that accrues from the possession of a secondary qualification in Namibia (see Tables 5.20 and 5.21) and the incentive to gain such qualifications must be very high, why do relatively few junior secondary school graduates who cannot get a place in a senior secondary school enter NAMCOL? Are they unaware of the opportunity open to them? Is NAMCOL too expensive for them? Or do they just not rate NAMCOL highly enough to bother? Unfortunately, we do not know. More research is needed in this area.

How then does what NAMCOL is doing measure up to the vision embodied in the NAMCOL Act (Act No. 1 of 1997), which specified NAMCOL's purpose as being

“to contribute towards the social and economic development of Namibia by upgrading the educational level of adults and out-of-school youths through programmes of open learning; by devising, developing and offering programmes to address the diverse needs of such adults and out-of-school youths; and by providing opportunities for adults and out-of-school youths to upgrade their professional and vocational skills, as well as their level of general education ...”⁴¹¹

In our view, NAMCOL is helping to upgrade the educational level of adults and out-of-school youths, but both the curriculum it is offering (even taking into account the professional programmes that are not a focus of our study), and the target it is reaching is relatively restricted. The vast majority of its student body studies courses developed as part of the standard academically-oriented Namibian secondary school curriculum in order to improve the grades they got when they were studying within the formal secondary school system.

Furthermore, as Namibia builds more traditional secondary schools, it's likely that NAMCOL's traditional market will begin to dry up, first at the junior and ultimately at the senior secondary schools level, which is why we endorse NAMCOL's search for new markets in which to deploy its expertise and its facilities.

In a sense, NIOS is a mirror-image of NAMCOL. The scale of the demand for secondary education places in India means that NIOS and the various State Open Schools will continue to have a major role in the medium- to long-term future. The addition of vocational educational

⁴¹¹ Ibid. Section 4 (a).

opportunities alongside more academic school subjects must reflect an appropriate response to the needs of some learners, while the continuing emphasis on academic subjects is clearly important in generating potential entrants for the university sector. It is this role, coupled with a commitment to the fundamental values of increasing access and equity that underpin so much distance education provision, that characterises the role that NIOS has occupied since it was originally set up as the National Open School – and that has made it such a key institution in the attainment of successive educational plans since the 1980s.

7.5.7 *Relative Effectiveness Ratio*

In Section 2.3, we introduced the concept of a Relative Effectiveness Ratio as a measure of the effectiveness of two or more institutions. If a traditional education system graduates 85 students out of every 100 (Effectiveness Ratio of 85 per cent), and a distance system graduates 40 students out of 100 (40 per cent Effectiveness Ratio), then a measure of the comparative effectiveness of the distance system relative to the traditional one is obtained by dividing the Effectiveness Ratio of the distance system by that of the traditional system ($40 \div 85$) to give a Relative Effectiveness Ratio of 47 per cent. If the distance system has an Effectiveness Ratio of 90 per cent, then the Comparative Effectiveness ratio is $90 \div 85$, giving a comparative effectiveness ratio of 1.06.

An Effectiveness Ratio of 1.0 indicates that the two systems are comparable in relative effectiveness. A ratio under 1.0 means that the distance system is less effective; a ratio of more than 1.0 means that it is more effective than the traditional system.

Although the NAMCOL part-time system never equals or surpasses the full-time system in effectiveness, in a number of subjects, it approaches the full-time system with respect to the proportion of students gaining grades A to G in the JSC examinations, or A* to G in the IGCSE examination. However, when it comes to comparing the effectiveness achievement of grades A to C (JSC) and A* to C (IGCSE), part-time candidates do not perform as well as the full-time ones. The Effectiveness Ratio at this level ranges from 0.31 to 0.64 at JSC level, and 0.23 to 0.51 at IGCSE level, depending on the subject. The challenge facing part-time providers – including NAMCOL – is to improve the performance of students who are currently gaining grades D to G.

These somewhat disappointing results need to be put in context. NAMCOL is attracting mainly students who have already studied in the formal system and have done badly in at least some of their examinations – the subjects that they are trying to resit through NAMCOL. What "badly" means in this context will vary from individual to individual, but at the JSC level, NAMCOL is enabling students who have achieved a pass at grades D, E, F or G, or a fail in a particular subject to retake that subject. At the IGCSE/NSSCO level, NAMCOL is providing students with an opportunity to improve their points score across five or, depending on what they want to do, six subjects.

For some students, the improvement in grades needed will be marginal – but for others the hurdle will be that much greater. If the majority of NAMCOL's students attempting a resit are from the less able pool of students in the formal system, as seems likely (after all, they have "failed" once), then it is not surprising that they do not do as well as their more gifted peers, and hence that NAMCOL's examination results are not as good.

Our study of NIOS makes clear how important it is, in judging the relative performance of open schools, to choose the right measure of success. The real measure of comparison is not how many NIOS learners sitting an examination pass in five subject (the number of subject passes required

for certification), but what the comparative pass rate is in each subject. If we judge NIOS against the "five passes in a single sitting" criterion, we effectively do the institution a disservice, because we are ignoring the fact that NIOS students can sit a subject whenever they feel ready take it and that the only restriction on them is that they should pass in five subjects over a five-year period. Over the years (January 1991 through to April 2007), on average just 31.4 per cent of those who have sat as many of the twice-yearly secondary examinations as they could until the year concerned (actual range 17.4 to 57.5 per cent) and on average just 26.9 per cent of those who have sat as many of the twice-yearly senior secondary examinations as they could until the year concerned (range 18.2 to 43.6 per cent), have succeeded in accumulating passes in the requisite five subjects in the year concerned (Table 4.16).

When we look at individual subject passes, the students' performance is much better with some subjects at secondary level attracting pass rates of over 90 per cent of those sitting the examination at the secondary level, and over 70 per cent at the senior secondary level (Tables 4.17 and 4.18). Table 4.19 shows subject-pass rates of between 44.5 and 63.7 per cent at the secondary level, and 51.5 and 65.9 per cent at the senior secondary level in the 2005 and 2006 examinations. The overall results for 2005 were a pass rate of 56.68 per cent at the secondary level and 57.77 per cent at the senior secondary level.

Table 7.3 shows the relative effectiveness of NIOS in comparison with the other boards of education in India using the 2004-2005 results for the other boards. The Relative Effectiveness Ratio is computed by dividing the pass rate gained in the distance system by the pass rate gained by students in traditional examinations. An Effectiveness Ratio higher than 1.0 indicates that students at NIOS are performing better than students at the comparator Board, other things being equal, while an Effectiveness Ratio of less than 1.0 indicates that NIOS students are not doing as well as those in the comparator boards, other things being equal. The qualifying phrase, "other things being equal" is important because, of course, the difficulty of the syllabuses and examinations and the standard of marking may vary from Examination Board to Examination Board.

Table 7.3: Comparative Effectiveness Ratio for NIOS against various comparator Boards of Education, 2004-2005 results

	2004-2005 secondary level subject pass rate		2004-2005 senior secondary level subject pass rate	
Board(s) of Education	%age pass rate	Effectiveness ratio	%age pass rate	Effectiveness ratio
State Boards of Education (traditional)				
Andhra Pradesh	72.41	0.783	53.18	1.086
Assam	55.54	1.021	58.48	0.988
Bihar	70.07	0.809	72.58	0.796
Chhattisgarh	48.10	1.178	67.47	0.856
Goa	54.90	1.032	72.33	0.799
Gujerat	56.49	1.003		
Haryana	61.81	0.917	54.19	1.066
Himachal Pradesh			68.66	0.841
Jammu & Kashmir	50.27	1.128	34.07	1.696
Jharkhand	71.36	0.793	83.82	0.689
Karnataka	63.90	0.887	60.39	0.957
Kerala			75.93	0.761
Madhya Pradesh	32.60	1.739	71.27	0.811
Maharashtra	58.72	0.965	62.60	0.923
Manipur	43.41	1.306	35.71	1.618
Meghalaya			73.88	0.782
Mizoram	45.77	1.238	46.90	1.232
Nagaland	76.89	0.778	78.29	0.738
Orissa	55.34	1.024	71.11	0.812
Punjab				
Rajasthan	50.38	1.125	72.24	0.800
Tamil Nadu	77.80	0.729	76.83	0.752
Tripura	77.80	0.729	68.85	0.838
Uttar Pradesh	69.71	0.813	90.64	0.637
Uttaranchal	49.15	1.153	73.75	0.783
West Bengal	70.52	0.804	61.48	0.940
Madrasah Board of Education				
West Bengal	66.37	0.854		
Central Board of Secondary Education	77.52	0.731	81.00	0.713
Boards of Education: Correspondence and Distance Learning				
Madhya Pradesh State Open School	38.29	1.480	21.23	2.721
NIOS	56.68	1.000	57.77	1.000

This table suggests that by and large, NIOS students perform well in comparison with the students taking other Boards' secondary education examinations but not as well at the higher secondary level. However, NIOS students do much better than students at the State Open School for which we have results.

7.5.8 How has studying in an open school helped students?

Does studying with NAMCOL help students to go on to higher education or further study, gain employment and gain promotion? In Section 6.9, we reported on Dr. Alicia Fentiman's research which showed just over 16 per cent of the 1999-2001 NAMCOL students that she

managed to trace had gone on to gain some kind of tertiary qualification and that 39 per cent were engaged in some form of further education at the time of her study. Also, whereas just one per cent of NAMCOL's current students have a paid job, 56 per cent of these students were employed. While some of these students were employed reasonably soon after they left NAMCOL, others took a while to find employment, and some had clearly gained employment only to lose it later. Some of the employment gained was low paid. Unfortunately it is difficult to interpret all Fentiman's figures, but one can infer that for some students, NAMCOL is a transforming experience of lasting benefit to them.

Equally, we lack information on the proportion of NIOS students who are working while learning. While we also lack anything beyond the anecdotal when it comes to looking at the impact that NIOS has had on the lives of those who have studied with it, but we can infer that some students have benefited significantly from their NIOS studies.

It's important to recognize that the success of the Open Schooling system can be measured not only on the basis of its throughput rates, but also on the extent of the socio-economic and developmental purpose it serves.

7.5.9 Relative Efficiency Ratio

In Section 2.4, we introduced the concept of a Relative Efficiency Ratio. While one can compare the unit costs of two or more institutions in the same jurisdiction, using a common currency base adjusted where necessary for price changes, comparisons across jurisdictions are fraught with problems both because costs (of labour, technology, etc) vary considerably from one jurisdiction to another. Also, fluctuations in exchange rates within a year can make nonsense of comparisons drawn up in a common currency – typically the US dollar. To get around this problem, we chose to compare the unit costs of distance and conventional systems in a jurisdiction and use the resulting Efficiency Ratio as a means of making comparisons across jurisdictions and across time.

The Efficiency Ratio is derived by dividing the average unit cost in the distance mode by the average unit cost in the traditional mode. A ratio of 1.0 would mean that the distance system is as efficient as the comparator system, less than 1.0 means that the distance system is more efficient than the comparator, and greater than 1.0 means that the distance system is less efficient than the comparator.

Table 2.2 showed that in terms of the unit cost per enrolled pupil, distance open schools can be, but are not necessarily, more cost-efficient than conventional schools, while Table 2.3 shows that the Efficiency Ratio in open schools tends not to be as favourable given the higher drop-out rates in distance learning.

In Section 6.12, we discuss the costs of NAMCOL and indicate the difficulties that arise when trying to compare NAMCOL's costs with costs in the formal secondary education system. Within the limits of the data we had available, and using 2007/08 budget data, we calculated unit costs in the formal system and in NAMCOL. We calculated the cost assuming NAMCOL's secondary school programme (the ASEP Programme) has to cover the costs of NAMCOL's other activities and their associated overhead costs, and on the more reasonable basis that the ASEP is responsible only for its own costs and associated overheads. We also calculated the unit costs before (gross) and after (net) taking account of fee income. On this basis, we were then able to calculate an Efficiency Ratio.

Table 7.4: Budgeted 2007/08 unit cost calculations, Namibian formal secondary education system and NAMCOL, and Efficiency Ratio

Basis of calculation	Secondary Education Costs			See Table
	Junior	Senior	All	
Unit cost per student, Formal Secondary School System: No differentiation between levels possible	5,346.12	5346.12	5346.12	6.26
Unit cost per subject enrolee, Formal Secondary School System, assuming an average 8.81 subjects per head at JSC level and 5.88 subjects per head at NSSCO level	606.82	909.20	-	6.26
Gross (i.e. before taking account of fee income) Unit cost per student, NAMCOL, assuming all NAMCOL costs are carried by NAMCOL's ASEP system including net losses on its non-ASEP programmes: • Cost per student • Cost per subject enrolee	1,492.38 681..60	1,380.99 369.62	1,433.78 477.41	6.27 6.27
Net (i.e. after taking account of fee income) Unit cost per student, NAMCOL, assuming all NAMCOL costs are carried by NAMCOL's ASEP system including net losses on its non-ASEP programmes: • Cost per student • Cost per subject enrolee	1,205.10 550.40	1,025.21 274.39	1,110.4 369.62	6.27 6.27
Gross (i.e. before taking account of fee income) Unit cost per student, NAMCOL, assuming non-ASEP costs are not charged against NAMCOL's ASEP system: • Cost per student • Cost per subject enrolee	1,320.33 603.03	1,208.95 323.57	1,261.73 420.12	6.28 6.28
Net (i.e. after taking account of fee income) Unit cost per student, NAMCOL, assuming non-ASEP costs are not charged against NAMCOL's ASEP system: • Cost per student • Cost per subject enrolee	1,033.05 471.82	853.16 228.35	938.41 312.46	6.28 6.28
Efficiency Ratios – student unit costs: • All costs, gross • All costs, net • ASEP costs only, gross • ASEP costs only, net	0.279 0.225 0.243 0.193	0.258 0.192 0.226 0.160	0.268 0.208 0.236 0.176	
Efficiency Ratios subject enrolment unit costs: • All costs, gross • All costs, net • ASEP costs only, gross • ASEP costs only, net	1.123 0.907 0.994 0.778	0.406 0.302 0.356 0.251	- - - -	

In our view, it would be invidious, in a straight cost comparison exercise, either to load NAMCOL's ASEP secondary education programme with the costs of other NAMCOL programmes or to calculate the relative efficiency of NAMCOL after taking into account fee

income from students. Hence, the fairest approach is to look at the Efficiency Ratio for gross ASEP costs. On this basis, the Efficiency Ratio shows that on a unit cost per student basis, NAMCOL costs somewhere between a fifth and a quarter of the cost of conventional secondary education in Namibia. However, NAMCOL students are taking far fewer courses per head than are students in the formal system, and as a result on a unit cost per subject basis it looks as if NAMCOL is roughly as cost-efficient as traditional secondary schooling at the junior secondary level, but much cheaper at the senior secondary level (costing about one third of conventional costs). However, these figures need to be treated with caution, because the data did not allow us to differentiate between the costs of the junior and senior formal secondary school systems.

The costs of NIOS have risen steeply year on year. Given the growth in its student numbers, this is not surprising. However, the increasing costs of the institution triggered the first cost study of NIOS. The results of this exercise (see Table 4.23) showed that the average cost per student in the Open School was less than that in the Kendriya Vidyalaya and the government schools in Delhi, but higher than those in the Delhi Correspondence School (Patrachar Vidyalaya). These results were unsurprising given that it was likely that even with as few as 10,000 to 11,000 students, the Delhi Correspondence School would be achieving some economies of scale, yet the quality of its provision was likely to be more of higher quality and hence more costly than those of the earlier generation of correspondence schools.

A second cost study was undertaken in 1997, again comparing the costs of NOS with various other systems. This time NOS was found to be the most efficient open school available. However, this study provides only the results, not the details of the calculations, so that it is impossible to judge whether the methodology used was satisfactory or not.

A third internally generated cost study of NOS was undertaken in 2006. In this study, the five-year budgeted expenditure for NIOS was compared with the five-year budgeted expenditure of two other systems. Once again, the study showed how cost-efficient the NIOS system is (see Table 4.26), but its weakness is that it is comparing very different kinds of institutions.

Given the age of the first two studies, and the various conceptual problems there are with them, we attempted yet another cost study of NIOS (Section 4.5.4). One of the significant differences in our approach was the abandonment of the traditional Full Time Equivalent student as a measure of load in favour of the more realistic student-course or student-subject load. For both NAMCOL and in NIOS, this is a better measure of load and hence of cost – given that the number of subjects taken per year by NAMCOL and NIOS students is very different to the number of subjects sat by traditional face-to-face students in Namibia and India.

In both NAMCOL and NIOS, we also faced problems in that we had to separate out the costs of the non-secondary education programmes, and this involved some arbitrary judgments in the absence of any embedded Activity Based Costing system – although here NAMCOL has advanced further than NIOS. As cost comparators, we used the costs per student course in Kendriya Vidyalayas (schools for the children of Central Government employees) between 2002/03 and 2005/06, while recognising the "special nature" of this system, and the 2006/07 per student course costs of the Emmanuel Mission Secondary School in Bhilwara, Rajasthan.

Computing the Relative Cost Efficiency Ratio from the data in Table 4.33 suggests that in relation to both these comparators, NIOS is extremely cost-efficient (Table 7.5). In this table, the Relative Cost Efficiency Ratio is the unit cost per student-course at NIOS divided by the unit cost per student course at the comparator institution.

Table 7.5: Relative cost efficiency of NIOS using INR cost per student course data when compared with Kendriya Vidyalayas, 2002/03 to 2005/06, and with the Emmanuel Mission Secondary School in Bhilwara, Rajasthan, 2006/07

Institution	Cost per student per course (INR)				
	2002-03	2003-04	2004-05	2005-06	2006-07
NIOS	1,410.77	1,188.66	1,169.63	1,150.55	1,212.71
KVs	15,479.30	15,731.72	15,217.08	14,816.54	--
EMSS	--	--	--	--	11,343.36
Relative Cost Efficiency Ratio	0.091	0.076	0.077	0.078	0.107

Simple measures such as unit costs and a Relative Efficiency Ratio hide underlying complexity of any comparison between one system and another (Section 2.4). Table 7.6 lists factors that impact costs and cost data.

Table 7.6: Major factors affecting costs in Open Schooling

Factor	Affects	Why
Total student numbers	Unit Costs	Committed costs of capital including course development and costs incurred in sustaining the business will be spread across students, hence unit costs will be higher if student numbers are low, lower if student numbers are high.
	Flexible Costs	Total student-related flexible costs will rise in line with student costs.
Courses presented	Capital costs	The more courses that are presented, the more courses need to be developed, resulting in a rise in the capital cost of the curriculum.
Course lives	Capital costs	The longer courses are presented before they are withdrawn/remade, the greater the number of years over which the capital costs of their development can be annualised, and hence the lower the sum that needs to be spread across the student body as a whole, or across the students taking the particular course.
Media and technology choice	Committed costs and flexible costs	Each medium/technology has its own cost structure, hence media and technology choice will affect total costs, total committed costs and flexible costs in different ways.
Face-to-face support	Flexible costs	The amount of face-to-face support that needs to be provided in total will be driven by decisions about the number of hours to be given each student-course member, and the size of groups. The total number of hours required will rise as student numbers and hence group numbers rise. In large-scale systems relatively modest increases in student numbers can generate very considerable increases in cost.

Course design parameters	Committed costs and flexible costs	Design parameters including decisions to create all materials internally, to buy-in materials (and whole courses) or to merely create study guides to existing textbooks that students have to buy themselves, will impact on costs in different ways.
Course module size	Working practices and hence capital costs	Large modules (requiring say more than 50-100 hours study) will, depending on design decisions, need teams to develop the materials and hence incur higher transactional costs as team members interact. Small modules can often be developed by one or two people, reducing transaction costs.
Cost recovery through cost sharing	Committed and flexible costs	Decisions to get students to pay for goods (e.g. texts) and services used at cost, cost +. and less than cost, will affect the extent to which variables in course design impact on the institution or the student
Labour employment policies	Capital costs and flexible costs	Using contracts for service for course developers and course tutors will reduce the level of committed cost put into hiring staff on contracts of service, and hence in general reduce the capital costs of developing courses and ensure that the flexible costs of teaching are no more and no less than that needed to deliver the courses.
Labour substitution policies	Flexible costs	Using cheaper labour – for example, graduate students – to tutor students and mark assignments, as opposed to more qualified staff, will reduce the flexible costs of teaching.

7.5.10. How do the two open schools, we have examined in this study, measure up against these criteria for a low cost model?

The first thing is that NAMCOL's ASEP programme has sufficient students to achieve economies of scale as reflected in the value of its Efficiency Ratio. It provides access to a range of courses at the junior and senior secondary level – though by no means as great a number of options as are available to students in the formal system. The College cannot control the length of life of its junior and senior secondary level courses since it has to respond to changes in the curriculum introduced by the National Examinations, Assessment and Certification Board. Like other open schools, it is vulnerable to the threat that a major curriculum reform will require it to scrap the whole of its junior or senior secondary school course profile and develop new replacement courses.

NAMCOL has relied upon two technologies that are known to be cost-efficient – print and radio. Although the cost of developing printed materials varies widely, NAMCOL has chosen to employ its authors on contracts for service with the result that it avoids the long-term costs of employing a staff of qualified teacher-writers. The same strategy has kept down editing costs.

Radio is very cost-efficient at audience sizes of over 1,000, but NAMCOL's use of radio is very restricted at present. If it wished to encourage greater use of audio materials in its courses, then its best avenue would probably be to explore the use of CDs – assuming that its students have access to players. It has avoided the use of television, which is in any case much more expensive than radio.

NAMCOL has been working with UNESCO on a project supporting the use of the ICTs in schools-based distance education⁴¹², but the introduction of ICTs is challenging because, as Orivel makes clear, in developing countries the per pupil per hour costs of eLearning solutions are often higher than the per pupil per hour costs of face-to-face teaching. This is because teacher labour costs are pegged to local economic conditions, while the costs of ICTs are driven by global economic conditions: "For the first time in the history of education systems, the price of educational input is determined not in accordance with the local purchasing power, but by world standards which apply in a similar way to rich and poor countries."⁴¹³

It makes economic sense and educational sense to use ICTs in countries where labour costs per pupil-hour are higher than ICT costs per pupil-hour. It makes educational sense but not economic sense to use ICTs in countries where the labour cost per pupil-hour is lower than ICT costs per pupil-hour.

NAMCOL has restricted the amount of face-to-face teaching its students receive. Arguments in favour of doubling the amount of face-to-face teaching per week per subject from two to four hours would be significant, as Table 6.21 indicates.

In designing its courses, NAMCOL has chosen to buy-in existing materials where this makes sense, rather than develop its own materials. It has been able to capitalise on the module size (measured in terms of the numbers of hours that students will on average use the materials for study purposes) to keep the number of people involved in developing its courses down. The point here is that any course taught through any medium requires a certain amount of time to prepare the materials. How long it takes to prepare a "chunk" of materials that will occupy a student for one hour varies according to the medium. Estimates by Sparkes are shown in Table 7.7⁴¹⁴. While such estimates need to be treated with care, it stands to reason that a course module requiring say 200 hours of student study from text is likely to need a bigger team of academics to prepare it than a course module only requiring 50 such hours – and that unless one is prepared to allow the development process to become overlong, big modules will need to employ teams of people, all of which adds to transaction costs.

⁴¹² See "NAMCOL closer to web based distance education", http://portal.unesco.org/es/ev.php-URL_ID=25167&URL_DO=DO_PRINTPAGE&URL_SECTION=201.html, accessed 7 October 2007.

⁴¹³ François Orivel, "Finance, costs and economics", in Chris Yates and Jo Bradley, *Basic Education at a Distance*, London, RoutledgeFalmer, 2000, p. 138.

⁴¹⁴ Sparkes, J. (1984) "Pedagogic difference between media", in Bates, A. W. (ed.) (1984) *The role of technology in distance education*, London, Croom Helm, p. 219.

Table 7.7: Academic work to produce one hour of student learning
(from Sparkes, 1982: 219)

Media	Hours of academic effort
Lecturing	2 - 10
Small group teaching	1 - 10
Teaching by telephone	2 - 10
Videotape lectures (for Tutored Video Instruction)	3 - 10
Audiovision	10 - 20
Teaching text	50 - 100*
Broadcast television	100*
Computer-aided learning	200*
Interactive video	300*

* Requires additional support staff as well

NAMCOL is a lean organisation, with a small core staff of just 48 (2006 figure) supporting 28,090 secondary school level students and a further 290 students in its professional programmes. The vast majority of its staff (1,228 in 2006) are on contracts for service. It makes use of peripheral staff who are employed on contracts for service and who are paid for the work they do – neither more nor less. Economically, NAMCOL is very efficient in terms of its unit costs per student, in comparison with the formal system. In terms of the its unit costs per subject enrolment, its "two academic years crammed into one calendar year" approach at the NSSCO level makes it very efficient compared with the formal system, while the unit costs per subject at the JSC Grade 10 level are on a par with those in the formal system.

Finally, there is the question of cost sharing. NAMCOL's income from government is based on a formula that provides the College a student per capita income fixed at 65 per cent of the cost to government of supporting conventional students. It is free to raise income in the form of fees, but obviously with most of its secondary level students unemployed, it cannot charge high fees and continue to fulfil its social mission.

NIOS is also a lean organisation. It does not have the cost of operating schools, because it works through Accredited Institutions and Accredited Vocational Institutions. Looking at the comparative costs per student (Table 4.26), we find that a student at a Navodaya Vidyalaya costs nearly 18 times that at NIOS and a student at Kendriya Vidyalaya costs more than 6 times that at NIOS. Further research finds that the cost per secondary student per course at Kendriya Vidyalayas and Emmanuel Mission Secondary School (located in a small town in Rajasthan, not one of the richer states) is more than 12 and 9 times respectively that of NIOS (Table 4.33). The research also finds that conventional schooling has become more than 3 times costlier than the ODL system over the past two decades. Over time, the conventional system is increasingly more costly than the ODL system. The finding should be of interest to both educators and educational planners.

NIOS is organised so that secondary and senior secondary students register for five years at one go. They pay according to the number of subjects they take and are given all the course materials at the time of registration. They are supported at study centres for the first academic year. This

way, the first phase of expenditure incurred by NOIS pertains to the first year of their registration. AIs are paid a flat rate per student for providing academic support.

Once study materials are developed (whether print-based or media programmes), they remain in use for about five years. On average, NIOS spend less per student per subject than it charges in several of its fee categories. The overall conclusion is that at the secondary level of education in India, ODL operations such as NIOS are significantly less expensive than the conventional schooling systems.

7.5.11 Why should we have confidence in the open schools?

The success of any open school's pedagogic system rests on three key factors: the quality of its course materials, the quality of its student support sub-system and the quality of its logistics. The quality of NAMCOL's course materials is not in doubt: the materials, subject by subject, are good to excellent. They are recognised as such, given the extent to which they are used by schools in the formal system and bought by formal system students. Logistically too the College performs well: the turnaround time on assignments is on a par with the best of correspondence systems, which is important because poor turnaround time is correlated with high drop-out rates.

NAMCOL's management systems and its student support systems are well-designed and function well. If there is a question mark, it hangs over the effectiveness of the student support system and how it could be improved in order to ensure that a higher proportion of students achieve their aim of getting an A to C grade in the national examinations. One approach would be to simply increase the amount of face-to-face support per subject per week. This may well be an appropriate response, but arguably NAMCOL also needs to build a much more individually targeted support system that identifies those students who are struggling and targets help at them.

NIOS operates at three levels – its New Delhi Headquarters, its 11 Indian and three foreign-based Regional Centres, and its Accredited Institutes which function as study centres. The central curriculum development processes are designed in conjunction with other agencies to identify curriculum needs, and there is a process by which courses and subjects are approved prior to the development of the materials by subject experts. During the materials development phase, there are a number of review points prior to final editing and production. Administrative and academic support is provided to the learners through the Accredited Institutes, which are selected against strict criteria. The activities that take place at these Institutes, including teaching and assignment marking, is monitored by academic facilitators attached to the Regional Centres. On the other hand, there are some doubts as to whether the monitoring processes at the AI level are adequate. And there is no current means of planning and reviewing a system-wide process of evaluation and quality assurance.

7.6 Policy advice

Open schools have not been without their problems, including low status, underfunding and poor results. But against this rather bleak scenario, there is strong evidence that open schools can capitalise on the ability to deliver secondary education to remote pupils, and indeed to support the establishment of secondary school "outlets" in communities that have never before had such opportunities. There is evidence that, organised in the right way and with an attention to cost reduction, open schools can be set up to reap the benefits of the economies of scale that distance education holds out as a possibility.

We offer the following recommendations to government leaders, policymakers, open school administrators, educators and community members who wish to maximize the potential of open schooling.

7.6.1 Sustainability

- **Secure government support through policy:** Stable and continuing political support is essential for the successful initiation and sustainability of open schools. It is critical that Open Schools are established within legal parameters. This will not only ensure government support, but it also provides a framework for the operations of the Open School within the National Development and Education Sector Plans. It is also vitally important that open schools gain secure, ongoing government funding. This should ideally be arranged through an agreed upon funding formula.
- **Define the role of the open school :** Open schools can be either a complement or an alternative to the conventional school system. Both roles are valid and useful – the critical factor is to clearly establish what role an open school will play. Two alternative approaches can therefore be envisaged:
 - A **complementary Open Schooling system** offering the same curriculum for children and youths who have never been in a position to attend the formal, classroom-based school system or who, having attended the formal education system, have had to drop-out because they have had to start working or because their grades have been too poor for them to progress through the grades and various examination hurdles.
 - An **alternative Open Schooling system** offering a different, more adult-relevant curriculum for adults who never had a chance to have or complete their formal education at school level (and perhaps some out-of-school youth, for whom an alternative curriculum – generally more vocationally-oriented – is seen as more appropriate).
- **Establish an effective management structure:** A lean management structure which is well designed and provide good governance at a low cost with a well trained staff cadre will contribute to the sustainability and success of an open school.
- **Support staff development:** The majority of staff in Open Schools are not ‘qualified’ in open and distance learning. In order to provide high quality service through materials development and tutoring, staff needs to be properly trained. It is critical that budgetary provision is made for staff development activities on an annual basis. Even if they are qualified, with the expansion and wider use of ODL as a delivery mechanism, and fast moving technologies, there is a continuous need for capacity building so that open school staff stay abreast of the latest developments in open and distance learning. The most successful open schools provide ongoing training to staff, creating environments of continuous improvement.
- **Ensure Cost-efficiency through proper Financial Management**

There is evidence that, organised in the right way and with an attention to cost reduction, open schools can be set up to reap the benefits of economies of scale which distance

education holds out as a promise. This study confirms that open schools are more cost-effective than formal schools.

It is also important to note the experience of India, where the conventional mode of schooling has become more than three times costlier than the ODL system over the past two decades. As the costs rise universally with the passage of time, the conventional system of schooling turns to be more and more costly than the ODL system

7.6.2 *Quality assurance:* A strong commitment to quality is helping open schools move beyond the poor reputation for quality surrounding earlier distance education efforts. It is generally accepted that the quality of distance education programmes rests on five foundations:

- the quality of institutional leadership and its ability to articulate a vision that will ensure survival.
- sound financial management, Open schools cannot be properly managed if there is not an appreciation of the difference between the economies of distance and conventional education. To plan for sustainable open schools management should explore options of how to reduce the burden of high fixed costs and how economies of scale can be reaped. There is evidence that this is an area where staff development is essential. The Commonwealth of Learning has realised the need for capacity building in financial planning and budgeting for open schools and has developed various resources.
- the quality of the programmes, courses and learning materials both in respect of their academic content and relevance, and the quality of the pedagogy underpinning their design. Course materials take on great importance in distance learning, usually serving as the primary means of learning. It is highly beneficial to have established procedures for developing course materials.
- the quality of the student support services including the quality of the advice given to students, the quality of teaching, and the quality of the assessment process (both formative and summative).
- the quality of the logistical system underpinning the student support system and the materials distribution system (for example, timely despatch of materials to students so that they have them to hand when they need them, timely feedback on student queries, rapid turnaround between receipt of an assignment and the return of the corrected assignment

It is therefore important that Open Schools embrace a culture of quality through the development of a Quality Assurance Policy, which will ensure accountability, transparency and good governance.

7.6.3 *Access and equity*

- **Potential for a flexible curriculum:** Open schools must take advantage of one of their primary strengths by remaining flexible and by so doing investing in a curriculum which is geared to address the development needs of the country. The open school has the potential to offer a diverse curricula and even to support the conventional system with subjects which cannot be offered due to teacher shortages or low enrolments.

- **Research Learner profiles** Open schools can reach marginalised groups and provide affordable education. It is important to know the different learner profiles in order to address the specific needs of learners e.g., girls, out-of-school youth or HIV/AIDS orphans. A limitation to this study was that institutions did not always know what happened to learners before or after they joined the institution. Research into learner profiles and tracer studies need to be undertaken to plan more needs driven curricula with a focus on the National and Development agenda of the country. This will make provision for improved articulation into higher education and the employment market.
- **Use of ICTS:** There is sufficient available experience and knowledge to know technology has an important role to play in open schools: ICTs can successfully be used by open schools to enhance their reach, strengthen their operational systems and enhance pedagogic practise. Issues which should be considered include the availability of infrastructure and national capacity, affordability, most appropriate media and student's access to technology. However, it makes economic sense and educational sense to use ICTs in countries where labour costs per pupil-hour are higher than ICT costs per pupil-hour. It makes educational sense but not economic sense to use ICTs in countries where the labour cost per pupil-hour is lower than ICT costs per pupil-hour. We have no hesitation in saying that technological approaches can be used to establish schools where no schools currently exist.
- **Increase access to ODL materials:** There is evidence that course materials of open schools can replace the traditional textbook in schools. In a time of scarce resources it is advisable, when available, to offer conventional schools access to learning materials from open schools. This will reduce the cost to governments and allow education funds to be directed elsewhere. It will create an avenue to open schools to generate additional income, while it is an opportunity for distance education and conventional teachers to collaborate in materials development .

Given the crisis in secondary education admissions, the evidence is strong enough and positive enough, both from the two open schools that we have analysed in this report, and from other studies referred to in Chapter 2, to argue strongly for the need to invest more in understanding what it is that makes for success in Open Schooling, and to suggest that in appropriate environments, new schools are founded to face the challenges of frustrated demand that so many countries face. We believe for economic reasons that this will be of key importance as the world faces the challenges of the next three or four decades – of environmental change, population growth, and resource and energy supply. We need a population that is equipped to rise to the challenges that they will face. Indeed, we go so far as to suggest that it will be difficult if not impossible to meet the demand and need for secondary education on the scale envisaged without resorting to Open Schooling approaches.

APPENDIX 1: PROFESSOR KOUL'S PROGRAMME

Date	Time	Activity
1 April 2007	22.00	Depart Gurgaon, Haryana
2 April 2007	14.20	Arrive Vancouver via Frankfurt
3 April 2007	09.00-10.30	At COL--Welcome and introductory session: Sir John Daniel, President and CEO, Commonwealth of Learning; Dr Asha Kanwar, Vice President COL; Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling; Professor B N Koul, Professor G Rumble
	11.00-11.30	Conference Call with NIOS (Shri M C Pant and Shri R K Arya)
	14.30-16.00	Mrs F Ferreira, Professor Koul, Professor Rumble: Agreement of Terms of Reference and Structure of Report
4 April 2007	09.00-12.00	Finalisation of Contracts
	17.30-19.00	Dinner: Sir John Daniel and Dr Asha Kanwar, Professors Koul and Rumble
5 April 2007	15.50	Depart Vancouver
7 April 2007	07.30	Arrive Gurgaon, Haryana via Frankfurt
10 -20 April 2007	---	Research and outlining the data profile required for drafting chapters on NIOS/India
25 April 2007	09.00-17.30	Travel: Gurgaon, Haryana to NIOS, New Delhi and back. 1 st Project Meeting at NIOS Headquarters: Prof. Koul presented the Project Objectives, the related Work Plan and the details regarding the data required for the Project to the Project Team put together by NIOS. The discussion that followed, among other things, led to fixing responsibilities for individual members (mainly for the collection of the data required for the Project). Prof. Koul's tasks were also outlined and explained. Members of the Project Team: Shri M C Pant, Chairman, NIOS; Dr. J D Sharma, Senior Executive Officer, NIOS; Prof. Puran Chand, Senior Executive Officer, NIOS; Prof. Harmesh Lal, Consultant, NIOS; Shri S K Anand, Deputy Director, Accounts, NIOS; Shri R K Arya, Assistant Director, Media, NIOS; Dr. R S P Singh, Assistant Director, Vocational Education, NIOS; Dr Oum Prakash Sharma, Assistant Director, Academic, NIOS; and Shri S K Prasad, System Analyst & Programmer, NIOS.
		1 st Progress Report e-mailed to COL.
26 April-15 May 2007	---	Prof. B N Koul hospitalized for surgery—an unscheduled event.

17 May 2007	11.30-18.00	Travel: Gurgaon, Haryana to NIOS, New Delhi and back. 2 nd Project Meeting: Meeting with Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling, COL (on a visit to NIOS) and the Project Team (NIOS): Prof. Koul presented a brief report on the progress (very little) made that far.
18 May-10 June 2007	---	Collection of data through the good offices of NIOS and the efforts of the Project Team. Work on the documents received from NIOS and preparation of <i>four sections</i> (draft) on NIOS/India.
11 June 2007	---	2 nd Progress Report and the draft of <i>the first set comprising four sections</i> on NIOS/India e-mailed to COL, NIOS and Prof. Rumble.
12-24 June 2007	---	Research and writing continued.
25 June 2007	11.30-17.30	3 rd Project Meeting: Feedback on the first <i>four sections</i> received and discussed; additional data and documents collected from and advice for further requirements given to the members of the Project Team.
26 June-8 July 2007	---	Research and writing continued.
9 July 2007	---	3 rd Progress Report and the draft of <i>the second set comprising five sections</i> on NIOS/India e-mailed to COL, NIOS and Prof. Rumble.
10 July 2007	12.30-17.30	Travel: Gurgaon, Haryana to NIOS, New Delhi and back. Meeting with Shri S K Anand, Deputy Director, Accounts, NIOS, for various clarifications needed to analyse the details of NIOS Accounts as they appear in official documents.
11 July-6 Aug. 2007	---	Research and writing continued.
7 August 2007	11.30-17.30	4 th Project Meeting: Feedback on draft of <i>the second set of five sections</i> on NIOS/India received and discussed; more data and documents collected from and advice for additional requirements given to the members of the Project Team.
8-26 Aug. 2007	---	Research and writing continued.
27 August 2007	---	4 th Progress Report and the draft of <i>the third set comprising three sections</i> on NIOS/India e-mailed to COL, NIOS and Prof. Rumble.
28-30 Aug. 2007	---	Research and writing continued.
31 August 2007	---	5 th Progress Report and the draft of <i>the fourth set comprising eight sections</i> on NIOS/India e-mailed to COL, NIOS and Prof. Rumble.
2-5 Sept. 2007	---	Visit to Emmanuel Mission Secondary School, Bhilwara, Rajasthan. Meeting with the Advisor, Shri Padam Nath Khar and collection of data.

7-18 Sept. 2007	---	Research and writing continued.
20 Sept. 2007	09.00-20.00	Travel: Gurgaon, Haryana to NIOS, New Delhi and back. 5 th Project Meeting: Feedback on the drafts of <i>the third set (three sections)</i> and <i>the fourth set (eight sections)</i> on NIOS/India received and discussed; more data and documents collected from the members of the Project Team.
24 Sept. 2007	10.30 19.30	Depart Gurgaon, Haryana Arrive London
25 Sept. 2007	10.00-17.00 19.30-21.30	Meeting at Thistle Victoria Hotel: All the drafts prepared by Profs. Rumble and Koul discussed and commented on for modifications. Also, a revised work schedule agreed to complete the remaining tasks. Dinner: Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling, COL; Professor G Rumble and Professor B N Koul.
26 Sept. 2007	08.00-10.00	Breakfast Meeting: Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling, COL; Professors G Rumble and Koul.
27 Sept. 2007	12.00	Depart Thistle Victoria Hotel/London
28 Sept. 2007	11.30	Arrive Gurgaon, Haryana
30 Sept. – 4 Oct. 2007	---	Work on the new data received from the Project Team on Sept. 20.
5-11 Oct. 2007	---	Preparations for and depart for treatment in Pittsburgh, USA [Non-Project activity]
12-18 Oct. 2007	---	Modifications in, additions to and reshaping of the earlier draft 12 sections (the last 8 sections were left out); newly shaped Chapters 3 and 4, comprising 5 sections each, prepared and mailed to Prof. Rumble on Oct. 18, 2007.
19-26 Oct. 2007	---	Remaining gaps (Abbreviations, Acknowledgements and Appendices) filled, final revision completed and the handover version of Chapters 3 and 4 e-mailed to Prof. Rumble and the 6 th Progress Report sent to Mrs Frances Ferreira, COL.
30 Oct. 2007		Consultants' final version of the Report sent to COL.

APPENDIX 2: PROFESSOR RUMBLE'S PROGRAMME

Date	Time	Activity
Friday 30 March 2007	12.30 19.00	Depart London Heathrow Arrive Vancouver via Calgary
Tuesday 3 April 2007	09.00-10.30	Welcome and introductory session, Sir John Daniel, President and CEO, Commonwealth of Learning; Dr

		Asha Kanwar, Vice President COL; Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling; Professor B N Koul, Professor G Rumble
	11.30-12.00	Conference Call with NAMCOL (Mr Harold Murangi, Mr Jan Nitsche, and Mr Beans Ngatjizeko)
	14.30-16.00	Mrs F Ferreira, Professor Koul, Professor Rumble: Agreement of Terms of Reference and structure of report
Wednesday 4 April 2007	09.00-12.00	Finalisation of contracts
	17.30-19.00	Dinner: Sir John Daniel, Dr Asha Kanwar, Professors Koul and Rumble
Saturday 7 April 2007	16.30	Depart Vancouver
Sunday 8 April 2007	12.30	Arrive London via Edmonton
12 April – 26 April	-	Research and write draft of Chapter 2
Monday 14 May 2007	21.30	Depart London
Tuesday 15 May 2007	12.30	Arrive Windhoek, Namibia via Johannesburg. Met by Mr Jan Nitschke, Manager, Research and Evaluation, NAMCOL
Wednesday 16 May 2007	09.00-10.00	Mr Jerry Beukes, Deputy Director Programme and Materials Development, NAMCOL; Mr Ephraim Dawids, Acting Deputy Director, Management and Support Services, NAMCOL; Mr Jan Nitschke, Manager, Research and Evaluation, NAMCOL; Ms Sylvia Makari, Senior Accountant, Finance and Administration, NAMCOL; Ms Francina Keendjele, Regional Manager, Central Region, NAMCOL
	11.00-11.30	Mr Beans Uazembua Ngatjizeko, Director, Department of Adult Education, Ministry of Education
	11.30-12.30	Mr Justin Ellis, Under-Secretary, Ministry of Education
	15.00-16.00	Mr Jerry Beukes, Deputy Director Programme and Materials Development, NAMCOL
Thursday 17 May 2007	-	Public Holiday: Research Day
Friday 18 May 2007	10.00-10.45	Mr Bertus Gous, Senior Education Officer, Secondary Education, Programme and Quality Assurance, Ministry of Education
	11.15-11.45	Mr Alfred Ilukena, Under Secretary, Formal Education, Ministry of Education
	12.30-12.45	Mr D Koch, Senior Systems Analyst, Examinations Section, Directorate of National Examinations and Assessment
	12.45-13.30	Mr Theophilus Kakonda, Economist, Planning, Ministry of Education
Saturday 19		Research

May 2007		
Sunday 20 May 2007		Research
Monday 21 May	09.00-09.30	Mr Heroldt Murangi, Director, NAMCOL
Tuesday 22 May 2007	10.00-11.15	Mr Heroldt Murangi, Director, NAMCOL
Wednesday 23 May 2007	08.15-09.00	Mr Johan P van Wyk, Deputy Director, Division of Information Technology, Ministry of Education
	09.15-10.15	Mrs Sandra van Zyl, Chief Higher Education Officer, ETSIP, Ministry of Education
	10.30-10.45	Mr Bertus Gous, Senior Education Officer, Secondary Education, Programme and Quality Assurance, Ministry of Education
Thursday 24 May 2007		Research
Friday 25 May 2007		Public Holiday: Research
Saturday 26 May 2007		Research
Sunday 27 May 2007		Research/writing up
Monday 28 May 2007	14.15-14.30	Mr Justin Ellis, Under-Secretary, Ministry of Education
	14.30-1500	Dr Heide Tavakovi, Financial Planner, Corporate Planning, MOE
	15.00-1530	Mrs Alida Boethe, Hostels Directorate, MOE
	15.30-15.45	Dr Heide Tavakovi, Financial Planner, Corporate Planning, MOE
	15.45-16.00	Mr Beyleveld, MOE
	16.00-16.30	Mr Beans Uazembua Ngatjizeko, Director, Department of Adult Education, Ministry of Education
Tuesday 29 May 2007	11.00-13.00	Seminar on costing for NAMCOL Materials Development Division and Finance Division staff
	14.00-14.30	Mr D Koch, Senior Systems Analyst, Examinations Section, Directorate of National Examinations and Assessment
Wednesday 30 May 2007	09.00-09.30	Mr Ephraim Dawids, Manager of Learner Support, NAMCOL
	09.30-09.45	Mrs. Rholene Bok, Marketing and Information Officer, NAMCOL
	10.00-11.00	Mrs Petrina Kamati, Senior Manager, Finance and Administration, NAMCOL
	11.00-12.20	Mr Heroldt Murangi, Director, NAMCOL
Thursday 31 May 2007	11.00-11.15	Rogger Ihemba, Research and Evaluation Unit.
Friday 1 June 2007	09.00-13.00	NAMCOL Closed for Graduation Day: Attendance at Graduation Ceremony. Discussions at the ceremony with Mr Justin Ellis, Under-Secretary, Ministry of Education, and Mr Beans Uazembua Ngatjizeko,

		Director, Department of Adult Education, Ministry of Education
	15.00-19.00	Writing up
Saturday, 2 June 2007		Writing up
Sunday 3 June 2007		Writing up
Monday 4 June 2007	13.00-13.15	Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling, COL
	14.30-15.00	Mrs Petrina Kamati, Senior Manager, Finance and Administration, NAMCOL
	15.00-15.15	Mr Heroldt Murangi, Director, NAMCOL
Tuesday 5 June 2007		
	15.00	Depart Windhoek, Namibia
Wednesday 6 June 2007	06.30	Arrive London via Johannesburg
17 – 30 June 2007		Complete draft of report chapters
30 June		Draft Chapters 1, 2, 5 and 6 to COL: subject to NAMCOL comments.
Monday 17 September 2007	19.30-21.00	London: Dinner with Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling, Commonwealth of Learning
Tuesday 18 September 2007	10.00-16.30	Meeting with Mrs Frances Ferreira, Education Specialist, Basic Education and Open Schooling, Commonwealth of Learning, and professor B. N. Koul: Review of draft report and agreement on work remaining
	20.00-22.00	Dinner with Professor B. N. Koul
Wednesday 19 September 2007	10.30	Depart London
22 September – 4 October 2007		Produce final versions of Chapters 1, 2, 5 and 6 and despatch to COL and Prof. Koul
5 October – 30 October 2007		Write Chapter 7 and despatch to COL Work on final chapters integrating work of Profs Koul and Rumble