Education Sector Support Programme in Nigeria (ESSPIN)

Assignment Report

STRENGTHENING THE EDUCATION SYSTEM TO MAKE IT A PILLAR OF NIGERIA'S VISION 20 2020

A contribution to the National Technical Working Group

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JG Jigawa
KD Kaduna
KN Kano
KW Kwara
LG Lagos

Contents

Acronyms and Abbreviations

CWIQ	Core welfare indicators questionnaire
DFID	(British) Department for international development
E9	Nine most populous developing countries
EFA	Education for all
EMIS	Education management information system
ESSPIN	Education sector support programme in Nigeria
FCT	Federal capital territory
GDP	Gross domestic product
GDP pc	Per capita gross domestic product
GER	Gross enrolment ratio
GMR	Global monitoring report
GNP	Gross national product
HDI	Human development index
IEA	International association for the evaluation of educational achievement
JS (JSS)	Junior secondary (school)
LGA	Local government area
MLA	Monitoring learning achievement
NC	North-central
NE	North-eastern
NER	Net enrolment ratio
NTWG	National Technical Working Group
NW	North-western (geo-political zone)
PPP	Purchasing power parity
PTR	Pupil-teacher ratio
SE	South-eastern
SEPER	State education public expenditure review
SS	South-south
SS (SSS)	Senior secondary (school)
SW	South-western
TVE	Technical and vocational education
UNDP	Unites nations development programme
UNESCO	United nations educational, scientific and cultural organisation
UNICEF	United nations children fund
USAID	United States agency for international development

Abstract

1. ESSPIN has been closely involved in the ground breaking work of Nigeria's "Vision 20 2020" through the participation of a member of staff in the work of the National Technical Working Group on Education (NTWG). This report represents ESSPIN's contribution to the NTWG report to the Vision 2020 committee.

Executive Summary

2. This document is a contribution by ESSPIN to the work of the National Technical Working Group on Education for Nigeria's "Vision 20 2020". It is organised in four chapters.

3. Chapter one proposes a methodology for identifying a set of countries to use as "targets" in the stated goal of Vision 2020, countries Nigeria should be competing with to reach her goal in 2020. The resulting list is: Brazil, China, Indonesia, Iran, Russia, South Africa and Turkey. It then provides the comparative values of Nigerian education relative to those of the "target" countries.

4. Chapter two summarises the major factors behind the lagging Nigerian education system. They are then briefly analysed as seven major issues. The first major issue is about government capacity in education, shown weak; the second major issue is about EMIS and which is inaccurate, incomplete and unreliable; the third major factor is the severe deficit in education coverage/access at all levels; the fourth major issue is the low level of learning achievements evidenced by focused international evaluation studies; the fifth major issue is the un-emphasised science and technology teaching; the sixth major issue is about tertiary education, which is uncontrolled and of poor quality; finally the seventh issue is the neglect of the islamiyyah system in the Northern states, which is both attractive for the families and unsupported by the government, thus wasting clear potentials and deepening centrifugal forces.

5. In chapter three, seven major programmes are identified to respond to the seven major issues. Rather than a detailed action plan, this set of programmes is intended as a long-term orientation from which successive medium-term plans can take until the goal is achieved. A final chapter shows how education policy in relation to "Vision 20 2020" should be constantly renewed and rooted in sound educational research.

6. The Nigerian educational system is bound to change as a result of both external and internal environment and also as a consequence of the implementation of the envisioned plans. Similarly the international focus on educational targets will change and should be monitored with regard to the same "target" countries identified in Chapter one. Educational research must therefore be boosted, updated and made more visible internationally than what it is

now. Channels must be set to connect educational policy making to educational research and findings.

Assessing the Gap with the "Target" Countries

A method for identifying the target comparative countries

7. The general objective statement of Vision 2020 to be among the 20 world largest economies needs practical translation. The first step is to identify the world countries that Nigeria is to emulate or compete with. As officially stated, the key overall objective of Vision 2020 is to "Place Nigeria in the bracket of top 20 largest economies of the world by the year 2020, able to achieve a GDP of not less than $900 billion and a per capita income of not less than $4000/annum by the year 2020"

8. There are thus two separate but associated indicators to be pursued concomitantly: the global Gross Domestic Product on the one hand, i. e. the sum total of the national economic activity, and the per capita GDP, i.e. the total production as related to the population size. Although of course closely related, these two indicators have a very different significance when it comes to improving the economy. A country such as India has a lower per capita GDP than Nigeria but a much higher GDP because of her population size.

9. Generally speaking, in economies trying to emphasize transformational activity, it is much harder to increase per capita GDP, as opposed to total GDP. But, in some sense, that is precisely the whole point of economic development.

10. Table 1 below shows a list of all countries with a GDP larger than Nigeria's. It takes data produced by the United Nations Development Program in its *Human Development Report* for 2007/2008. The data is based on 2005 economic data (the latest available in detail). There are 46 such countries ranging from the US producing 12,558 billion dollars, down to New Zealand with a total GDP of 109 billion dollars. Nigeria had a GDP of 106 billion dollars.

11. Those countries differ tremendously in fact, with some displaying a low per capita GDP, as is the case with India (no. 10, $ 736 as against $ 752 for Nigeria, no. 47) and others with a very high per capita GDP. Norway (no. 25) for example had a per capita GDP of $ 63,918, much larger than that of the US but only a total GDP of $ 294 bn, a third of that of India.

Table1: Economies larger than Nigeria in ranking order

HDI[1] Rank	Country	GDP[2] pc 2005 ($)	Total population 2005 (mn)	Rank in economic production	Total GDP ($ bn)
12	United States	41 890	299.8	1	12 558.6
8	Japan	35 484	127.9	2	4 538.4
22	Germany	33 890	82.7	3	2 802.7
81	China	1 713	1 313.0	4	2 249.2
16	United Kingdom	36 509	60.2	5	2 197.8
10	France	34 936	61.0	6	2 131.1
20	Italy	30 073	58.6	7	1 762.3
13	Spain	25 914	43.4	8	1 124.7
4	Canada	34 484	32.3	9	1 113.8
128	India	736	1 134.4	10	834.9
70	Brazil	4 271	186.8	11	797.8
26	Korea (Republic of)	16 309	47.9	12	781.2
52	Mexico	7 454	104.3	13	777.5
67	Russian Federation	5 336	144.0	14	768.4
3	Australia	36 032	20.3	15	731.4
9	Netherlands	38 248	16.3	16	623.4
17	Belgium	35 389	10.4	17	368.0
84	Turkey	5 030	73.0	18	367.2
7	Switzerland	49 351	7.4	19	365.2
6	Sweden	39 637	9.0	20	356.7
61	Saudi Arabia	13 399	23.6	21	316.2
15	Austria	37 175	8.3	22	308.6
37	Poland	7 945	38.2	23	303.5
107	Indonesia	1 302	226.1	24	294.4
2	Norway	63 918	4.6	25	294.0
14	Denmark	47 769	5.4	26	258.0
121	South Africa	5 109	47.9	27	244.7
24	Greece	20 282	11.1	28	225.1
5	Ireland	48 524	4.1	29	198.9
94	Iran (Islamic Republic of)	2 781	69.4	30	193.0
11	Finland	36 820	5.2	31	191.5
38	Argentina	4 728	38.7	32	183.0

[1] Human Development Index. The HDI is a UNDP composite index aiming at ranking countries on a broader basis than the mere economic income or production. It includes: per capita GDP, life expectancy at birth, adult literacy rate and combined gross enrolment ratios.

[2] Gross Domestic Product

HDI[1] Rank	Country	GDP[2] pc 2005 ($)	Total population 2005 (mn)	Rank in economic production	Total GDP ($ bn)
29	Portugal	17 376	10.5	33	182.4
21	Hong Kong, China (SAR)	25 592	7.1	34	181.7
78	Thailand	2 750	63.0	35	173.3
74	Venezuela	5 275	26.7	36	140.8
63	Malaysia	5 142	25.7	37	132.1
32	Czech Republic	12 152	10.2	38	124.0
75	Colombia	2 682	44.9	39	120.4
23	Israel	17 828	6.7	40	119.4
39	United Arab Emirates	28 612	4.1	41	117.3
25	Singapore	26 893	4.3	42	115.6
40	Chile	7 073	16.3	43	115.3
136	Pakistan	711	158.1	44	112.4
36	Hungary	10 830	10.1	45	109.4
19	New Zealand	26 664	4.1	46	109.3
158	Nigeria	752	141.4	47	106.3

Source: UNDP, Human development Report 2007/08

12. Another difference is the Human Development Index (HDI) ranking with some top economies (Japan, Canada) ranking rather high while others fare really bad, such as India (rank 128) or Indonesia (rank 107). Nigeria ranks lowest in HDI as 158th in the world.

13. Because Vision 2020 puts emphasis simultaneously on both indicators, total GDP and per capita GDP, it is necessary to find a compromised way of selecting the competing countries. It should be clear that the ambition is to become an emerging economy, not a fully industrialised country in a mere ten-year's period. To take into account all those factors, it is proposed to consider as cutting points per capita GDP within a deviation of no more than $ 3,000 from the Vision target of $ 4,000. This gives a range of values for per capita GDP of between a high of $ 7,000 and a low of $1,000.

14. To use these cut points to our list of countries in Table 1, we first selected the 30 largest economies (as taking only 20 would leave very few countries) and then applied the per capita GDP limits. That leaves us with a pool of seven countries listed below in Table 2. Interestingly four of them are oil producers just as Nigeria and two of them run also a federal system of administration, just as Nigeria does. That group of countries also presents the advantage of including countries from all of the continents, from Africa, to America, Europe and Asia.

15. However all of the countries have a vastly greater per capita GDP than Nigeria; the closest country from that perspective is Indonesia with a pc GDP twice as high as Nigeria is. That is where the challenge lies and the kind of attitude change towards productive work,

entrepreneurship, community participation and other such positive abilities involved in increasing people's productivity, is precisely what education can contribute.

Table 2:Population and economic size of the "target" countries (2005)

Country	GDP pc 2005	Total population 2005 (million)	Total gdp ($ bn)	Rank in total GDP	HDI Rank
China	1 713	1 313.0	2 249.2	4	81
Brazil	4 271	186.8	797.8	11	70
Russian Federation	5 336	144.0	768.4	14	67
Turkey	5 030	73.0	367.2	18	84
Indonesia	1 302	226.1	294.4	24	107
South Africa	5 109	47.9	244.7	27	121
Iran (Islamic Republic of)	2 781	69.4	193.0	30	94
Nigeria	*752*	*141.4*	*106.3*	*47*	*158*

Source: Selected from Table 1

16. In this chapter, whose aim is to highlight some of the gaps in the situation of education in Nigeria, this list of countries will be systematically used as reference, for consistency. This same list might as well be considered for later uses for future monitoring of progress toward Vision 2020. To start with, Table 3 below gives updated basic data on those "target" countries.

Table 3: Updated basic indicators for the « target » countries, 2006

Country	*GNP pc*	*Total population*	*Total GDP ($ bn)*
China	2 000	1 320 864	2 641.7
Brazil	4 710	189 323	891.7
Russian Federation	5 770	143 221	826.4
Turkey	5 400	73 922	399.2
Indonesia	1 420	228 864	325.0
South Africa	5 390	48 282	260.2
Iran (Islamic Republic of)	2 930	70 270	205.9
Nigeria	620	144 720	89.7

Source: *Global Monitoring Report on EFA (GMR)*, 2009.

Basic comparative indicators of Nigerian education with the "Target" countries

17. Tables 4a to 4e below show a number of basic indicators comparing the Nigerian situation to that of the "target" countries. All of the data come from UNESCO's *Global Monitoring Report (2009)* and sometimes differ from sources used elsewhere. For example the literacy rate given in Table 4a for Nigeria (71%) is 3 percentage points higher than that from the CWIQ survey of 2006 (68%). Despite that, the Nigerian rate is clearly below that of the "target" countries, showing a first major indicative gap.

Table 4a: Adult literacy, compulsory education in Nigeria and "target" countries (2006)

Country	*Adult literacy rate (2000-06, %)*	*Compulsory education (ages)*	*School life expectancy*
China	78	6-14	11
Brazil		7-14	14
Russian Federation	98	6-15	14
Turkey	79	6-14	11
Indonesia	82	7-15	12
South Africa	88	7-15	13
Iran (Islamic Republic of)	66	6-10	13
Nigeria	*71*	*6-14*	*8*

Source: *GMR*, op. cit.

18. From the same table one sees that the compulsory portion of education is pretty similar across those countries, but this is only the legal structure with no indication of the level of implementation. As is shown further below, in Nigeria one cannot really speak of "compulsory" education of any sort given that nobody gets punishment for failing to send children to school.

19. More significant is the last indicator in Table 4a: the school life expectancy. Just as with the equivalent life expectancy at birth, it is an estimate of the average duration of schooling that an average child can expect to receive when they reach admission age. A Nigerian child can expect an average of 8 years of schooling on average whereas all other countries offer at least three or more years more. In all of the countries except Nigeria the school life expectancy is greater than the number of compulsory basic education years of schooling. Iran for example offers 13 years of schooling on average while only 5 years are compulsory; Indonesia offers 12 years with only 9 compulsory, etc.

20. A second set of indicators are shown in Table 4b. They all relate to various aspects of access into different levels of education. In pre-primary participation, Nigeria with a GER of 14%, is close to three times less than in most "target" countries, not to speak of Russia with 87% or Brazil with 69%. Only Turkey is in a similar situation with 13%.

21. The same is true for the other levels from JS to SS to tertiary. The GER in senior secondary education is everywhere higher than 50%, reaching 70% in two of the countries and 90% in

three more. In the meantime it is only reported as 30% in Nigeria. In tertiary education the Nigerian GER is behind all of the "target" countries.

Table 4b: Enrolment ratios into various levels of education in Nigeria and the "Target" countries (%, 2006)

Country	*GER pre-school*	*NER primary*	*GER Junior sec.*	*GER Senior sec.*	*NER secondary*	*GER tertiary*
	2006	*2006*	*2006*	*2006*	*2006*	*2006*
China	39		98	55		22
Brazil	69	94	114	95	79	25
Russian Federation	87	91	80	91		72
Turkey	13	91	88	72	69	35
Indonesia	37	96	78	51	59	17
South Africa	38	88	98	92		15
Iran (Islamic Republic of)	53	94	86	77	77	27
Nigeria	*14*	*63*	*35*	*30*	*26*	*10*

Source: *GMR*, op. cit.

22. In Nigeria, the proportion of secondary pupils enrolled in technical and vocational schools is close to zero (table 4c). Meanwhile the proportion is significant in all the other countries, Brazil being an exception with only 3%. Talking about changing young people and parents' attitude towards productive work, that is where it starts. There is also the proportion of tertiary students engaged in engineering where Nigeria shows all of 0.2% compared to 41 % in Iran, 20% in South Africa, 16% in Brazil, etc.

Table 4c: Access to science, technical and engineering education in Nigeria and "Target" countries

Country	*% in secondary TVE 2006*	*% science & engineering 2006*
China	15	
Brazil	3	15.8
Russian Federation	17	
Turkey	21	20.8
Indonesia	14	
South Africa	6	19.9
Iran (Islamic Republic of)	9	41.3
Nigeria	-	*0.2*

Source: *GMR*, op. cit.

23. Table 4d gives some qualitative information on primary education. The survival rate to the final grade in primary, which results from a combination of various effects of school and family characteristics, is higher in all "target" countries than it is in Nigeria (only 63%). It is also a good measure of (in)efficient use of resources there where hundreds of millions of

naira are spent on primary students who eventually don't reach the minimum level for sustainable literacy.

24. The pupil-teacher ratio is higher in Nigeria than in any other Target country, even though South Africa doesn't differ much (36 pupils per teacher against 37 in Nigeria). In reality the situation is much worse than that in Nigeria as the pupil-classroom ratio is much higher than the PTR because of an alarming shortage and neglect of school infrastructure. This causes a substantial proportion of teachers to remain idle for lack of classrooms, while the classrooms being used show ratios twice as high as pupil/teacher ratios.

Table 4d: Survival rates and pupil-teacher ratio in primary in Nigeria and the "Target" countries (2005/06)

Country	*Survival rate to final primary grade 2005*	*PTR in primary 2006*
China		18
Brazil	80	21
Russian Federation	95	17
Turkey	94	
Indonesia	79	20
South Africa	77	36
Iran (Islamic Republic of)		19
Nigeria	*63*	*37*

Source: *GMR*, op. cit.

25. Finally Table 4e presents some overall costs and financial information on education. Without even beginning to analyse that information in relation to the situation in Nigeria, what appears to be the most typical information on Nigeria is the conspicuous absence of information. It is the only country in the list where no expenditure information whatsoever is available from that international table. That in itself is the sign of a very big gap in procedures, monitoring and evaluation of education. Just because financing education is the responsibility of the states and local governments doesn't mean that the Federal Government shouldn't keep monitoring information on that important feature.

Table 4e: Expenditure on education in "Target" countries and absence of information on such in Nigeria (2006)

Country	*Expenditure on education as % of GNP*	*Recurrent expenditure on education as % of total public expenditure*	*Recurrent expenditure per pupil in 2005 PPP[3] US $*		*Primary teacher salary as % of recurrent public expenditure*
			Primary	*Secondary*	
China					78
Brazil	4.1		1005	926	
Russian Federation	3.9				
Turkey	4.1		1059	1313	
Indonesia	3.8	18			
South Africa	5.5	18	1383	1726	
Iran (Islamic Republic of)	2.7	19	927	720	
Nigeria					

Source: *GMR*, op. cit.

Insights into the Major Factors behind the Lagging Nigerian Education System

26. Problems in the Nigerian education are many and have been written about in numerous documents. Many long, medium and short-term plans and roadmaps have been recently formulated at federal and state levels. An orientation document such as this one is not the place for yet another long list of problems and proposed solutions. Rather, it should provide a summary of that handful of fundamental issues that are at the base of other problems. When adequate solutions begin to be gradually found to these "Major issues", improvements in most other areas will follow.

27. The following seven major issues are a selection of such overriding issues, from several state strategic plans, federal plans and roadmaps from recent years, as well as studies and reports sponsored by our International development Partners on the subject.

Major issue A: Weak Government oversight capacity in education

28. Nigeria has, admittedly, one of the most complex institutional settings in the world. In education, public education is decentralised with all three tiers of government (Federation, States and Local Government areas) concurrently responsible for financing and delivering educational services. This complexity renders management institutional arrangements both very difficult and crucial.

29. However, several recent reports have pointed to serious weaknesses in that area. A recent USAID-sponsored report stated that: "State and local government lack tools, mechanisms

[3] PPP: Purchasing power parity value

and procedures for meaningful oversight of classroom and school activity. School directors and Head Teachers are not prepared to seek opportunities to improve quality and performance of teachers. District and LGA level supervisors and inspectors are usually overburdened by the number of schools under their theoretical oversight. Efforts to boost accountability and participation through parental involvement are perfunctory or limited to the catchment areas of donor projects" ("Northern Education Initiative", 2008).

30. The 2007 World Bank-sponsored public expenditure review ("A Review of Costs and Financing of Public Education") observed that: "Measurement of goals, with the difficulties identified on data collection, analysis and utilization, is a rarity in Nigeria, as the setting of broad goals has been more ideological than practically measurable. Ad hoc and independent initiatives did not lend themselves to measurement of achievement in the education sector. Learning achievements and household surveys have captured some of the key data, and highlight the deficiencies in the system, but not the mechanisms by which to modify goals to achieve better results." The report deplores "weak governance in the sector, as management functions do not focus on measuring results within the policy and planning departments."

31. Pointing to coordination difficulties in the education sector, the document states: "Frequent policy changes, especially at the primary education level, have caused confusion, duplication, and sometimes rivalry in the discharge of responsibilities. This lack of clarity on responsibility for education, and in particular for the division of labor between the three tiers of government has resulted, in many states, in inefficient service delivery, a lack of accountability and at times increased tension between the States and the Federation."

32. In terms of school-based management, the major roadblock is the absence of a direct access of schools to the financing of their running expenditures. There is no enrolment-related budget line at state or LGA level to cover these needs. As a consequence schools rely on fees charged from parents, which in a sense is a violation of the free basic education principle and may be one factor for the low enrolment ratios seen in some areas. Another consequence is that the head-teacher is left with no resources for innovating in quality school delivery.

Major issue B: Inaccurate, incomplete and unreliable EMIS

33. The Educational Management Information System (EMIS) plays a key role in the development of the education sector as an indispensable tool for policy setting, implementation, monitoring and evaluation. Without a fairly accurate knowledge of the current and changing situation in the sector and its several key aspects, it is impossible to design and implement the required targets and initiatives.

34. Although annual national school censuses began 20 years ago in Nigeria, their conduct, processing and reporting have been all but irregular, incomplete and unreliable. The most recent and successful EMIS report was in 2006 reporting on school years 2004/05 and

2005/06. That was an acclaimed change from previous attempts, providing in-depth statistical analyses, giving the values of the usual educational indicators, and reporting information by LGA.

35. However, that was a basically donor-driven exercise. Partners who provided support, financial or technical, included UNESCO, the World Bank, USAID, UNICEF and DFID. Despite officially stated intention, the exercise hasn't been repeated so far. As a matter of fact, the state teams who engaged in the development of Medium-term sector strategies (MTSS) in one particular set of five states in 2009 have been obliged to use the same 2005/06 data as baseline because no more recent reliable and usable data was available[4]. Using four year old school data for projections runs high risks of very inaccurate if not misleading predictions.

36. Beside the sporadic and uneven character of EMIS, the system suffers from systematic misrepresentation of school reality at base. The current institutional arrangements to determine the sharing allocation of the national income from the Federation Account to the states and LGAs have included total school enrolment as one of the factors to be taken into account.

37. To take example on 2003 state revenue sharing, the fixed indices were: 40% of the revenue distributed on equality basis, 30% on population size basis, 10% on landmass and terrain considerations, 10% based on the states' revenue effort and 10% on social indicators. This latter portion was further divided as 24% for primary enrolment, 16% for direct and inverse ratio of secondary to commercial enrolment, 30% for hospital beds, 15% for water supply spread and 15% for rainfall proportion.

38. This arrangement has been a push for enrolment inflation from everywhere. Presumably the same occurs with the hospital beds and water supply statistics. States authorities are aware of the problem but many fear that successful efforts by one state in accurately reporting school data would lead to a detrimental decrease in their share of Federal allocation in favour of other states. This only underlines that the endeavour must be federal and adhered to by all.

Major issue C: Severe deficits in education coverage

39. Issue number one in Nigerian education is probably the inadequate coverage of education, particularly basic education. Perhaps the best way to show the magnitude of the problem is to look at the educational attainment of the population by focusing on an especially significant group of the population: the 25-35 age group. It is in that group that the younger generation in their full strength is engaged in productive activity. Provided with appropriate education and skills, they can make most difference.

[4] These are the states involved in the DFID-sponsored Education Sector Support Programme in Nigeria (ESSPIN).

40. Table 5 summarises the situation of that particular group in terms of education at the time of the 2006 CWIQ survey[5]. 44.5% among them had never attended school, 60.6% didn't go beyond primary education, 64.9% didn't have education beyond Junior secondary, while those who completed senior education or vocational and technical education, represented 30.3%.

41. That is not very high as those not having completed basic education represented 62.3%, a very high proportion. The very reason for the recent basic education policy was to make the 10-year schooling available for everybody. Figure 1 on page 15 shows in graphic form the composition of the 25-35 age group by educational attainment.

Table 5: Educational attainment of population aged 25-35

Categories	*Males*	*Females*	*Total*
Never attended school	30.8%	54.7%	44.5%
Incomplete primary education	2.5%	2.6%	2.5%
Only completed primary education	14.6%	12.9%	13.6%
Incomplete junior secondary education	2.0%	1.6%	1.7%
Only completed junior secondary education	3.0%	2.2%	2.6%
Incomplete senior secondary education	3.7%	2.1%	2.8%
Only completed senior secondary education	28.6%	16.1%	21.4%
Completed vocational, technical	2.3%	1.6%	1.9%
Attended tertiary education	10.1%	4.7%	7.0%
Missing information	2.6%	1.5%	2.0%
Total	100.0%	100.0%	100.0%

Source: Derived from CWIQ raw data (2006)

42. While Table 5 gives the best approximation of the amount of education received by a group as measured by the highest grade completed, enrolment ratios are more commonly used to measure levels of participation in the system. Higher enrolment ratios indicate likelihood that large proportions of children are receiving the kind of education meant to them.

[5] CWIQ: Core Welfare Indicators Questionnaire. That major survey covered all 36 states of the Federation and the FCT; all 774 LGAs were canvassed, cutting across both the urban and rural ares of the country, in all covering 77,400 households.

Table 6: Age-group enrolment rates by geo-political zone, 2006 (%)

	6-11 years			12-14 years			6-14 years			15-17 years		
	T	M	F	T	M	F	T	M	F	T	M	F
NATION	65.8	67.4	63.9	75.5	77.0	73.8	68.6	70.2	66.7	67.1	68.0	67.1
NW	43.6	47.9	38.7	52.5	57.4	46.1	45.8	50.3	40.4	41.6	46.7	41.6
NC	78.5	79.7	77.0	85.3	87.6	82.4	80.6	82.2	78.6	80.0	82.9	80.0
NE	47.4	48.7	46.0	56.4	57.4	55.2	49.8	51.0	48.3	48.2	50.5	48.2
SW	94.9	94.6	95.2	95.6	95.4	95.8	95.1	94.8	95.4	87.5	88.0	87.5
SS	91.7	91.7	91.7	92.1	92.7	91.5	91.9	92.1	91.6	79.7	79.7	79.7
SE	93.1	93.7	92.4	95.4	95.7	95.0	93.9	94.5	93.4	87.8	87.9	87.8

Source: Derived from CWIQ raw data (2006)

43. Unfortunately high proportions of over-age or under-age pupils in the system make the use of enrolment ratios more problematic: using the gross enrolment ratio (GER) results in overestimating that proportion as large numbers of pupils use a system that isn't meant for them, sometimes leading to a GER greater than 100%. Whereas using the net enrolment ratio (NER) results in underestimating the participation because large numbers of children who are using the system are not counted for reasons of age. Table 6 therefore uses enrolment ratios by age-groups irrespective of the educational level attended. This works rather well in primary as the vast majority of the 6-11 are indeed in primary grades, but much less well in further levels.

44. The enrolment ratios for the 12-14 age-group, corresponding to Junior secondary school are seemingly higher than those for the 6-11 age-group corresponding to primary education (75.5% compared to 65.8%). It doesn't mean that the enrolment ratio in JS is higher than primary: it means only that the 12-14 children are proportionally more present in school; however, in their majority they attend primary school rather than junior secondary school, because of over-age admission and repetition (see Table 7 below for the net enrolment ratios by sub-level).

45. Table 6—derived from the CWIQ data set of 2006—shows that participation into basic education is only 68.6% nationally with a gender parity index of 0.95. As is clearly apparent from the table, that low participation is in fact the problem of the two geo-political zones of North-West and North-East, which represent 13 states of the Federation. There, enrolment ratios are less than 50% (45.8% and 49.8% respectively). In the southern states, basic education has attendance of more than 90%, approaching universal basic education.

46. With the 15-17 group—corresponding to senior secondary sub-level—age specific enrolment ratios are 67% nationally, with 42% in the North-Western zone and between 80 and 88% in the Southern zones. But again these rates are much too optimistic as can be seen in Table 7 showing a net enrolment ratio of only 24.9%.

47. For those who wish to compare the above enrolment ratios with the traditional gross enrolment rates, which also tend to overestimate participation, they are given in Annex 1 for each of the four school levels.

48. Regarding tertiary education, CWIQ data show that the total number of students at that level represented a ratio of 1,862 students per 100,000 inhabitants (Table 8). Other sources, notably GMR (2009), give a tertiary GER of 10%. As already stated above (Table 4b), this GER places Nigeria lower than all other countries in the "target group". Table 8 shows also that particularly the South-Western zone has by far the largest concentration of tertiary students with just above 4,000 students per 100,000 inhabitants; it is followed by the other two Southern zones with around 2,900 students and the North-Central zone with 1700 students; the two other Northern zones are very significantly behind, with merely a third and 40 percent respectively of the national student participation.

49. Finally, two very important indicators of education development are the adult literacy rate and participation in preschool education. The first is important as an indication of human capital quality and the second as preparation for basic education. CWIQ data show that the literacy rate (defined as the proportion of people aged 15 or more able to read and write in any language) in 2006 was 60.5%, i.e. 70.0% for males and 50.9% for females. Net enrolment ratio in pre-primary was 17%[6], with no difference between boys and girls. Both indicators represent very weak levels for the concerned populations and pointing to the need for a big push.

[6] This ratio is somewhat greater than that given by the GMR source (table 4b above) certainly because the latter refers to children aged 3-5 whereas this one is restricted to the 4-5 age group.

Fig 1: Shares in the population aged 25-35 by educational attainment

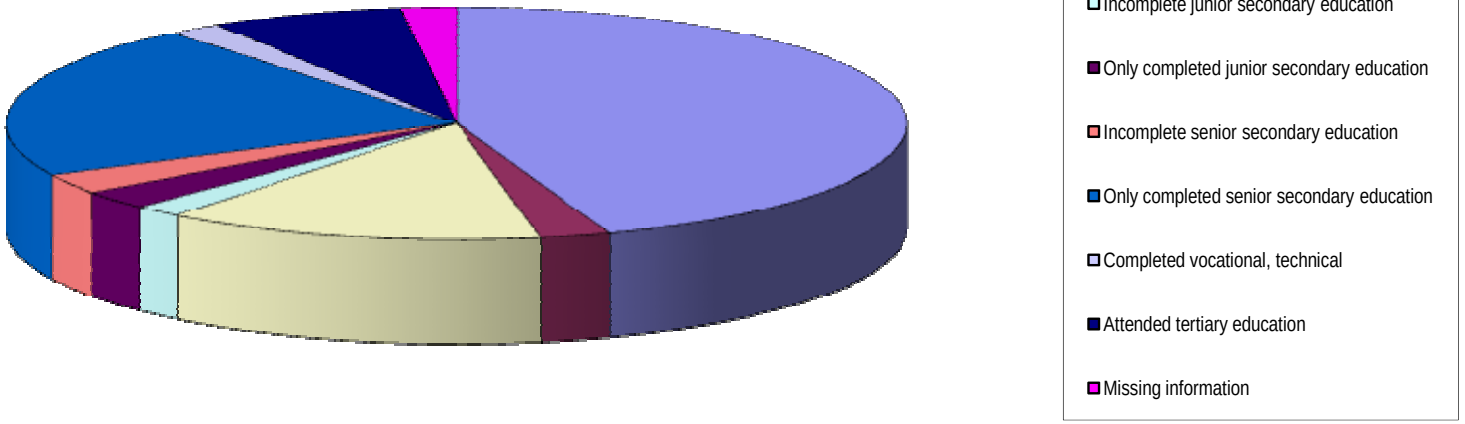

Table 7: Net enrolment ratios by level (2006)

Sub-level	T	M	F
Primary	58.6	60.1	56.8
JSS	28.0	28.1	27.8
SSS	24.9	24.4	25.6

Source: Derived from CWIQ raw data (2006)

Table 8: Number of students per 100,000 inhabitants by geo-political zone

ZONE	*Male*	*Female*	*Total*
NW	845	247	557
NC	2 093	1 243	1 687
NE	1 014	414	728
SW	4 602	3 495	4 046
SS	3 440	2 486	2 969
SE	2 965	2 784	2 872
Total	2 187	1 525	1 864

Source: Derived from CWIQ raw data (2006)

Major issue D: Low learning achievement across the system

50. In striving to make education a pillar of Vision 2020 in its economic ambition, we aim to make our people an "educated people". For this to happen it is not enough to generalise basic education to all. It is equally or even more important that the amount of actual learning they permanently assimilate is adequate. First among this required learning is reading literacy. However, available evidence shows that the Nigerian system hasn't been performing very well in that regard in comparison to other countries.

51. In 1991, a study was conducted by the International Association for the Evaluation of Educational Achievement aiming at describing the achievement levels in reading literacy of comparable samples of students from 32 systems located on five continents. Annex 2 to this document shows a summary of the mean scores by country. It can be seen that Nigeria had a score of 401, the third lowest of all. The top achieving country was Finland with a mean score of 560.

52. From another document by UNESCO (*The Quality of learning: teaching the 3Rs in the first three grades in E-9 countries*, 1996), the following extract about the textbook issue is telling:

> "In Nigeria, with its present policy on education, pupils begin to study the English language from grade 1. By the beginning of grade 4, English is the language if instruction. Results of the Federal Ministry of Education's project to monitor learning achievement (MLA) of students beginning grade 4, in collaboration with UNESCO and UNICEF, indicated that the level of competency in English was very minimal and that the level of numeracy competency was generally very low. The national mean score on the literacy tests was 25.2%, with noticeable subgroup differences,

favoring urban versus rural students and private versus public school students. Performance in writing was the poorest, with a mean score of 18.2%. other studies, carried out by the University of Lagos, has shown that fifth and sixth grade students were unable to read simple stories in Yoruba, the dominant Nigerian language, or in English and were unable to perform written comprehension tasks in either language."

53. The same document compared textbooks availability across the E-9[7] countries, as one of the most important factors of learning achievement.

> "Indonesia: Government and non-government textbooks can be used to implement 1994 curriculum. Funds are limited, however, and textbooks supply is inadequate in some schools; some schools in remote areas have not received any textbooks. To address this, many schools use textbooks available in the market, but approved by the Directorate of Primary and Secondary Education;
>
> "India: Virtually all primary students have access to textbooks;
>
> "Mexico: Inverse relationship between grade and number of textbook (grade 1 students use seven books, grade 2 students use six books, and grade 3 students use five books). Workbooks available in grades 1-2 but are supplemented by texts in grade 3;
>
> "Nigeria: Major constraint is cost: although there are over three hundred titles of books at primary level they are '…unaffordable to the consumers…not uncommon to find only one student in a class of 60 students that possesses the textbooks in the English language and mathematics.' Teachers do not have access to texts or teachers' guides and resort to using the pupil's text to conduct the lesson."

54. These examples are good illustration of the seriousness of the situation in Nigeria.

Major issue E: Un-emphasised science and technology teaching

55. An able manpower and production-oriented population is an indispensable ingredient in boosting productivity and raising the country's ranking. Hence particular importance of science and technology teaching and learning at all levels of education. The situation on the ground, however, is one where science teaching has been neglected despite the setting up of special science schools.

56. There are many examples of senior secondary schools with no chemistry or physics teacher for many years and from which no students sit for scientific subjects. What is there is a real vicious circle where we have a decreasing number of students taking scientific subjects, resulting in a decreasing number of science teachers produced, which further reduces science teaching in secondary schools and the number of potential candidates for science.

[7] The « E-9 » countries are the 9 most populous countries in the developing world: Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan.

57. An international study confirmed this in the early 1990s. An IEA study on science achievement (Postlewaithe, T. Neville and David E. Wiley; *The IEA Study of science II: science achievement in twenty-three countrie*s; 1992) some results of which are shown in Annex 3, showed that Nigerian students at the end of primary 6 had a mean score of 32.9, the lowest score of all countries. The top county (Japan) scored 64.3. Nigerian students in SS1 scored 40.8, the second lowest of all countries. The top country (Hungary) scored 72.2 and the lowest (Philippines) 38.2.

Major issue F: Unplanned quantitative low-quality tertiary education

58. The issue about tertiary education is one of cost-benefit. In addition to the Federal expenditure on federal universities, the states spend a lot of money on tertiary education. The World-bank study (SEPER study) mentioned above found that the states' expenditure on higher education was between 29 and 31%. Although higher education is constitutionally the responsibility of the Federation, most states have established and continue to expand their own universities, polytechnics and other higher education institutions.

59. The globally unplanned expansion of tertiary education, with no matching quality investment is the source of decreasing graduate quality. Little effort is also made to respond to emerging manpower needs in the economy. There thus are decreasing job opportunities for university graduates as observed in a recent study: "it is hard to ignore recent studies that report high unemployment rates among graduates. One of these is a tracer study in which just 51 percent of those who graduated in 1994/95 (one to two years prior to the survey) claimed to have been employed…" (Dabalen A. and B. Oni, *Labor Market Prospects of University Graduates in Nigeria*, 2000).

60. The same study gives some more insights into the decreasing graduate quality. The authors state that "There is a wide perception, among employers, that 'the quality of university graduates has worsened during the 1990s'. From a survey conducted by the authors with employers, they state that "poor abilities in the oral and written expression in English were mentioned almost like a chorus…" One example given was the complaint from a banker that "some graduates who were recruited as senior managers 'cannot write a memo of three paragraphs'".

61. The reasons for that are to be found in the low investment in quality improvement in higher education institutions, which are under pressure from increasing student numbers and decreasing available resources. The result is that teaching facilities and infrastructure are inadequate, materials and texts are out of date and teacher professional development is not prioritized.

Major issue G: Attractive yet unsupported alternative Islamiyya system in the North

62. Section 2.3 above has shown that the lowest performing states in education coverage are located in the two North-Western and North-Eastern geo-political zones. The qualification to this statement is that in those areas parents have a preference to send their children to Islamiyya schools, an alternative community based school system. In many of the concerned states, the bulk of their girl children attend that system rather than the public system.

63. A USAID-sponsored report about the situation of education in the Northern states, recently stated:

> "Nigeria has about six million pupils enrolled in Qur'anic schools, predominantly in the northern zones of the country. Qur'anic schools are defined as those offering only religious instruction and recitation of the Qur'an. These schools are under the direction of mosque leaders and local imams, and do not offer any secular education curriculum. A significant proportion of these pupils are girls. In some Qur'anic schools, boys predominate (referred to as Almajari) having been sent by their families to attend and reside in these schools. Often the school is unable to provide for their care and support and the Almajari are reduced to begging in the streets for their sustenance.
> "Gradually, some of these Qur'anic schools are evolving into Islamiyyah schools by integrating aspects of a secular primary school curriculum into their religious teaching. Retaining religious instruction satisfies the needs of many Muslim families who also wish their children to learn reading, mathematics, science and social studies. With more northern states beginning to recognize the importance of formal basic education, and increasing political and popular support for the Islamiyyah model, there are opportunities for increasing Muslim outreach and closing both the north-south and gender gaps that should not be missed."

64. Some states have started a process of integrating those schools into the public system but not much of real research has been conducted and still little is known about them and the real conditions of this integration. Furthermore these schools are totally ignored in the annual school censuses, which frustrates the concerned states. But the potential is enormous both for improving school enrolment especially for girls, and for better national integration of the country.

Policy Orientations to Catch Up and Beyond

65. There is no question that there is plenty room for interventions in the education sector for the purpose of boosting the economy and vice-versa. Meeting the challenges posed by Vision 2020 will require strong and determined measures to revive the education system. Conversely a thriving economy will make it possible to provide substantially more resources to the education system and to more fully use the human capital created by it. That is basically what prominent economist John Galbraith meant when he stated, a decade and half ago, that "there isn't in this world an educated population that is poor and there isn't an illiterate population that isn't poor".

66. In line with the idea of a vision as opposed to a detailed plan, this chapter presents a number of broad orientations and programmes to be implemented continuously through a multi-plan perspective. They are proposed in a way that matches the seven Major programmes identified in Chapter 2 above. Each of the programmes is wide enough in scope to require several years and planning cycles to complete.

67. Once there is agreement on the nature of these major programmes, then successive medium-term plans will be developed to take them forward, set specific time-bound targets and identify initiatives to achieve them.

Major programme A: Improve Government capacity to sustain educational services

68. Improving Government oversight capacity in education is the purpose of this programme. A critical review of the main functions and institutional arrangements in education delivery and supervision should be done, with a view to smoothing all the overlaps and inconsistencies that have been observed between Federal, state and local governments.

69. Of particular importance are the following functions: quality assurance, planning and monitoring, financing and human resources management. Once the responsibilities, structures and job descriptions are delineated, human resources requirements will be assessed and the gaps filled through training and other means.

70. This streamlined and consolidated capacity of the Government is a prerequisite for various other programmes including where IDPs provide assistance, because it is the condition for ownership of interventions.

71. Improved school-based management is also part of the programme. This involves the consolidation of school-based management committees to encourage ownership by the local communities. This also involves promoting direct school financing of their running expenses giving head-teachers direct access to funds.

Major programme B: Secure an Educational Management Information System (EMIS)

72. The aim of this programme is to secure a reliable, accurate, timely information system that fills the needs of all stakeholders as well as researchers and users at all levels, federal, state, local, institutional including the international community as well. What makes it crucial is that without it, none of the various programmes being proposed to improve the sector will be able to be monitored.

73. As said before, the main challenge with EMIS isn't primarily technical. It is institutional and political. On the institutional level, there is need to remove the legal incentives for misrepresenting reality. But of course there is a technical side to it in the form of computer software procurement and training. Decentralised processing should be carried as decided by the NCE. All this should be vigorously pursued in an accelerated way

Major programme C: Micro-planning of Basic Education for all

74. As is well known, when you try to provide your population with basic education for all, you will always find it harder to reach the last 10 to 15% than the earlier fractions. That is because the late comers concentrate obstacles to EFA, including very low demand. State-based educational planning will not be able to identify the appropriate strategies to succeed: it is necessary to use local-based planning, one that will be able to understand and adjust to local features. That is micro-planning or school mapping.

75. This programme will seek to reinforce local planning activities in the area of basic education. While the main policies and plans are drawn at federal and state levels, micro-planning seeks to ensure greater equality in the distribution of educational services, a better adaptation of these to the needs of local governments and communities and a more efficient use of all the resources available.

76. Micro-planning suggests also as a working method, participation of local communities in planning efforts. There is an intrinsic limitation of policy and planning at central and state levels when it comes to implementation of basic education through real understanding of the local constraints and full use of consolidated strengths and possibilities offered at the local level.

77. "School-mapping" methodology is called for. It shouldn't be misinterpreted as merely marking on a large-scale map the location of existing schools with appropriate symbols but it is rather a whole set of techniques and procedures used to identify future needs in education at the local level and to plan for measures to be taken to meet them.

78. A phased set of procedures combining action-research activities in pilot LGAs, training and generalising implementation should be planned as part of the programme.

Major programme D: Rebuild quality of teaching across levels

79. Under this programme, the aim is to ensure that the learning achievements at all levels of education meet the expectations. There are three components to this endeavour: first implementing a level of formal quality measures through institutionalising and monitoring improved ratios. These are, first, pupil to classroom ratios to ensure decent physical learning conditions. Then such ratios as pupil to teacher, pupil to textbook, teacher to guides, etc.

80. The second component is the promotion by the relevant bodies of good teaching practice through research, in-service teacher training and other methods. It is worth quoting the following passage extracted from a report sponsored by the Norwegian Education Trust Fund in 2003 to illustrate the kind of investigation that is required.

> **"**Planners in a number of countries examined the cost effectiveness of 40 policy interventions they had implemented to improve school quality. The top five most *cost effective* interventions were, in this order: (i) assign the best teachers to first grade, (ii) enforce regulations on the official length of the school year, (iii) don't switch classroom teachers during the school year,

(iv) test 10 percent of grade 4 students annually and distribute the results to teachers, and (v) decentralize school management. The first three of these interventions had very little cost but had a high impact on productivity and increase in the use of instructional time.

"The four policy interventions that they assessed as having the *greatest probable impact* on improving school quality and learning achievement were, in this order: (i) provide teaching and learning materials and train teachers to use them, (ii) provide self-learning materials alone (i.e. without accompanying teacher training), (iii) provide a package of interventions to schools-at-risk including self learning materials, training in active and cooperative learning, hands on workshops, community involvement, school based management, formative evaluation and systematic testing and feedback, and (iv) pay rural teachers more and assign the best teachers to the first grade of primary school. These interventions require greater investment than those in the paragraph above and also the probability of full implementation is lower than the five most cost effective interventions. The findings indicate that before large investments are made in interventions aimed at quality improvement policy makers take care to assess the cost, what is required (institutionally) to implement and the likely impact on increasing learning." (Audrey Aarons, *Achieving Universal Basic Education: Issues in primary education and some implications for teacher policies)*

81. The third component in the programme is the regular monitoring of learning achievements. A methodology should be developed, building on earlier experiences with UNESCO/UNICEF, to implement the monitoring, organise discussions with the relevant stakeholders, give necessary feedback to teachers and take appropriate corrective measures.

Major programme E: Boost science and technology education

82. Given the particular nature of Vision 2020 ambition, the role science and technology are to play is enormous. In improving production capacity, the training of technology oriented manpower is crucial. To make up for the current disastrous situation, investment in laboratories and science materials including textbooks and experimental products is called for.

83. Attracting students into scientific fields through differential fellowships has been tried in several states and needs evaluating. Similarly some states have instituted preferential salaries for science teachers in secondary schools. These should be evaluated and amplified. If necessary, attracting foreign science teachers should be considered.

84. Parallel to these proposed measures, regular and organised monitoring of the pass rates in science at regional and national exams should be implemented and appropriate feedback acted on.

Major programme F: Streamline tertiary education

85. Higher education trained personnel will be major players in the country's efforts to boost her competitive edge in the next few years. At the same time high level Research and Development is bound to be key for large companies that wish to compete on the global

market. Therefore the tertiary system must play an important role in bringing about Vision 2020.

86. As said before there is general dissatisfaction about the quality of university graduates recently at the same time as enrolment has been growing enormously. This programme will have three components: one, promote quality assurance through enforcing standards, developing counselling, ensuring minimum equipment in relation to enrolment, encouraging faculty publications, international university cooperation etc.

87. Second, it will launch a number of planning studies first to inform of the academic, physical and student performance situations. Projections of secondary school graduates on the one hand and of the job market situation in various states will help states in managing their higher education institutions.

88. And third, the financial situation will be streamlined by clearly sorting out priority investment to be paid by government and expenses that should be paid by the students. In line with paragraph 86, priority should go to investment in equipment and material. For some states the share of higher education in state budget has been growing at the expense of basic education and that should be reversed.

Major programme G: Develop Islamiyya schools into basic education institutions

89. This programme is important for two reasons: first, the Islamiyya network is very large in the Northern states of the country and attracts many children, especially girls. These children have a right to Education For All and it is the international consensus that in the face of special groups who do not receive complete basic education, official systems must adapt to their needs rather than the other way round. Ignoring them will only push back achievement of EFA.

90. The second reason is that official recognition of these schools will serve at the same time a cohesive function in the nation. It is not right that no recognition is accorded them when the parents value them so much.

91. This programme should then begin by carefully researching those institutions, and operationally categorising them, in full collaboration with the proprietors. Then the best methods will be developed for transforming them into basic education institutions for each category. Some will be "integrated", others will be supported with a secular teacher, others will receive material support, textbooks, training, etc. Cooperative curricula could be considered with those who so prefer.

92. Non integrated Islamiyya schools should organise a public information system allowing Government to follow their growth in time and space.

Promote Policy Renewal Rooted in Sound Research

93. The above proposals are necessarily limited to what is known about the Nigerian education system, its problems, its potentials and its comparative situation. By nature, what is envisaged with Vision 20 2020 can be expected to bring quick changes that will alter those potentials and problems. Changes will also happen in the "target" systems. It is then crucial that education policies are responsive to these internal and external changes, which is only possible with a dynamic and productive research network in education coupled with a responsive policy making body readily using the new findings in its policies.

94. Systematic information on the state of educational research in Nigeria isn't available. However available indications show that it is very weak from an international standpoint. For example a recent quick look at UNESCO holdings in educational periodicals from around the world showed the following results.

Table 9: Number of active educational periodicals in UNESCO 's holdings by country (August 2009)

Categories	Number of periodicals
All countries	524
"Target countries"	18
Of which Brazil	3
Of which Nigeria	1
Of which Russia	10
Of which South Africa	4

Source: http://www.unesco.org/library/periodics.shtml

95. Of course Table 9 is partial as not all of a country's periodicals necessarily reach UNESCO's library. Nonetheless assuming that UNESCO has no particular reasons to discriminate against a country, the table clearly shows how Nigeria barely appears in the list thanks to her one title from University of Ibadan: *West African journal of education*. The reason the other "target" countries don't appear in Table 9 is simply that publications there are in national languages other than UNESCO working languages (Chinese, Indonesian, Turkish, Farsi). However Nigeria doesn't have other publication languages than English.

96. In order to energise education research concrete policies should be put in place to encourage researchers financially and otherwise. And one of the best ways to achieve this aim is to promote extensive use of research findings in policymaking. In this way evidence based plans will be implemented generating changes in the education situations, changes continually monitored by up to date and productive research, leading to constantly improved policies in a virtuous circle.

Annex 1: Gross enrolment ratios by school-level and geo-political zone (2006)

Zone	Primary			JSS			SSS			Tertiary		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
NW	68.0	52.6	60.9	48.4	28.2	39.6	36.8	25.6	32.7	12.0	2.9	7.2
NC	115.0	110.1	112.8	83.7	73.4	79.1	83.6	65.6	75.9	22.1	13.1	17.8
NE	69.2	64.5	67.0	52.9	42.9	48.5	49.3	35.1	43.4	13.4	4.5	8.7
SW	117.9	118.4	118.2	100.7	95.8	98.3	97.7	92.0	95.1	52.0	43.8	48.1
SS	117.8	111.6	114.8	100.9	103.2	102.0	96.5	94.8	95.7	33.5	24.0	28.8
SE	129.1	124.9	127.0	93.3	98.3	95.7	95.0	93.5	94.3	29.5	28.5	29.0
Nation	92.4	85.2	89.0	74.6	67.9	71.5	69.5	65.2	67.6	25.6	16.7	21.1

Source: Derived from CWIQ (2006)

Annex 2: Mean student ability scores in an IEA international study of reading literacy (1994)

Country	Grade tested	Mean age	Mean
Finland	8	14.7	560
France	9	15.4	549
Sweden	8	14.8	546
New Zealand	10	15.0	545
Hungary	8	14.1	536
Iceland	8	14.8	536
Switzerland	8	14.9	536
Hong Kong	9	15.2	535
United States	9	15.0	535
Singapore	8	14.4	534
Slovenia	8	14.7	532
Germany/E	8	14.4	526
Denmark	8	14.8	525
Portugal	9	15.6	523
Canada/BC	8	13.9	522
Germany/W	8	14.6	522
Norway	8	14.8	516
Italy	8	14.1	515
Netherlands	8	14.3	514
Ireland	9	14.5	511
Greece	9	14.4	509
Cyprus	9	14.8	497
Spain	8	14.2	490
Belgium/Fr	8	14.3	481
Trinidad	9	14.4	479
Thailand	9	14.2	477
Philippines	8	14.5	430
Venezuela	9	15.5	417
Nigeria	9	15.3	401
Zimbabwe	9	15.5	372
Botswana	9	14.7	330

Source: Extracted from Warwick B. Elley, The IEA Study of Reading Literacy: Achievement and Instruction in Thirty-two School systems, Pergamon 1994

Annex 3: Mean score in core science test for Population 1 and Population 2[8] on an IEA international evaluation in science (1992)

	Population 1	Population 2
Australia	53.5	595
Canada (Eng.)	57.2	619
Canada (Fr.)	60.4	602
China		587
England	48.8	558
Finland	63.8	617
Ghana		455
Hong Kong	46.6	546
Hungary	60.2	722
Israel	49.6	619
Italy (Grade 8)		524
Italy (Grade 9)	55.8	596
Japan	64.3	673
Korea	64.0	602
Netherlands		658
Nigeria	32.9	408
Norway	52.9	598
Papua New Guinea		545
Philippines	39.6	382
Poland	49.7	604
Singapore	46.8	549
Sweden (Grade 3/7)[9]	53.4	577
Sweden (Grad 4/8)	61.1	614
Thailand		551
U.S.A.	54.8	548
Zimbabwe		413

Source: Postlewaithe, T. Neville and David E. Wiley; *The IEA Study of science II: science achievement in twenty-three countries*; 1992

[8] Population 1: "Studenst in the grade where most 10 year olds were to be found on the specified date of testing"; Population 2:"Students in the grade where most 14 year olds were to be found on the specified date of testing".

[9] Grades 3 and 4 apply to Population 1 and grades 7 and 8 to Population 2