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Challenges and Approaches to Expanding Learning Opportunities in Africa

Parallel Session 7A

Assessment

Uganda Secondary Education & Training Curriculum, Assessment & Examination (CURASSE) Roadmap for Reform

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Draft Report

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Uganda Secondary Education & Training

Curriculum, Assessment & Examination (CURASSE)

Roadmap for Reform

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Abbreviations used in this report

CURASSE	Curriculum – Assessment – Examinations
DIT	Directorate of Institutional Training
EFA	Education For All (one of the MDGs)
EFAG	Education Funding Agency Group
EMIS	Education Management Information System
ESA	Education Standards Agency
ESIP	Education Strategic Investment Plan
ESSP	Education Sector Strategic Plan 2004-2015 (June 2004)
GOU	Government of Uganda
MDG	Millennium Development Goals
MoES	Ministry of Education and Sports
NTC	National Teachers College
NCDC	National Curriculum Development Centre
PPES	Post-primary Education Sector
PPET	Post-primary Education and Training
SE	Secondary Education
TA	Technical Assistance
UNEB	Uganda National Examination Board
UNCST	Uganda National Council for Science and Technology
UPE	Universal Primary Education
USE	Universal Secondary Education

Executive Summary

Uganda has taken the decision to proceed rapidly from a secondary system designed for a small academic elite to one designed for the whole age cohort. Only one other country in sub-Saharan Africa, South Africa, has fully implemented this change; in others, such as Botswana and Namibia, the process is under way. There are therefore few role models on the continent; Uganda is essentially breaking new ground.

The 3rd regional SEIA Conference, held in April 2007 in Accra, Ghana, in which African 38 country delegations and all major development partners participated (including Uganda), provides the background for the discussions in the Uganda Curasse Roadmap report. **The challenges of education development in Sub Saharan Africa (SSA) at the beginning of the 21st century are unprecedented.** Faced with persistent gaps in the coverage of primary schooling, almost all countries have launched major efforts to ensure that all children will have the opportunity to complete a primary education of acceptable quality. At the same time governments are committed to expanding access to further learning. Worldwide the most common model is now an 8-9 year cycle of basic education for all, followed by system of diversified learning paths, which give all adolescents the opportunity to develop their full potential. This is in part a response to the soaring demand for more places in junior and senior secondary education as the number of students that completes primary school increases rapidly. But it also reflects the belief that successful participation in the technology driven global economy requires skilled people – many with science and technology skills. In addition, social imperatives – increased awareness of HIV-AIDS and other health risks, promotion of democratic values, and participation in economic and social development, combined with the growth in numbers of urban youth- call for specific policies to promote a better life style and enhance the productive potential of young people. Many political leaders recognize the importance of better using the human capital embedded in their youth.

Most middle- and higher income countries have made curriculum reform a continuous process in response to the rapidly changing demands from their labor markets. However, Uganda faces the challenge of first undertaking a more fundamental "adjustment" of the post-primary system in order to (a) allow USE to be developed in sync with economic development demands for the 21st century; (b) respond the increasing numbers of primary graduates as the MDG of primary education for all is achieved in the near future; and (c) reduce the unsustainably high cost of the current system.

The change in Uganda from an exclusive system specifically designed to create a managing elite to an inclusive one that is designed to support the effort of every individual to climb as high as possible up the educational ladder, is a major one that will have an impact on every aspect of the curriculum process. It will involve long-term political decisions as well as a considerable re-orientation exercise for professional staff at all levels. It has often been observed that countries that have managed this transition most successfully and with popular support are those that have also faced other social upheavals such as recovery from a war or the kind of social changes associated with gaining political independence. Neither of these conditions applies in Uganda and the difficulties associated with the change management cannot be over-emphasized.

The "Curasse Roadmap" report looks in detail into why the curriculum change is required. The main reason is the need to change the curriculum from an exclusive one characterized by high entry qualifications and high failure rates to an inclusive one which is open to all and rewards achievement, however meager. The economic argument for change is also a strong one. Currently the unit cost of secondary education is around seven times primary whereas other countries have reduced this to around two times (ref. Keith Lewin, SEIA thematic study). The reasons for the high cost are examined section 4) and they are mainly the current high cost of many subjects and also the inefficient way it is managed; the secondary PTR is reportedly around 20 which is very low by comparison with

what is achievable internationally. A third important reason is that the existing curriculum is not delivering the kind of skills that the labor market requires to met the emerging needs of the nation.

Inevitably execution of the Curasse Roadmap will require a reflection on the role and responsibilities of the various "education management actors", notably the MOES and its decentralized units, and the institutional framework which should guarantee the quality and efficiency of the services delivered and its outputs (i.e. quality of graduates, teaching, and managers and teachers). In this context the MOES could look at the best practices in other countries (for example South Korea, Singapore, Vietnam, and some European countries, notably Scotland, England and the Netherlands). International experience indicates that decentralized management with a "solid and transparent" assessment system, and involvement of all major stakeholders is the 'current norm". The proposed Roadmap would aim to make the delivery of secondary education and training services more efficient (at reduced unit-costs, so that more coverage can be achieved in a sustainable manner) and of better quality (so that Uganda's economic development goals can be better served.

The report argues strongly that the curriculum reform should be preceded by a reconsideration of the secondary education structure (section 4) . It is suggested that a new leaving point be established after S2 to replace P7, creating 9 years basic education for all, a system now very common worldwide. After this ninth year, a variety of diversified and non-compulsory education tracks can be developed including the existing academic track of S3-S4 and existing options of specialized vocational and technical training institutions (rather than at secondary schools). A compulsory junior secondary curriculum based around a limited number of core subjects, could culminate in a USE leaving examination. However, the value of such a "leaving diploma" would be determined by its recognition by the main "economic actors" in Uganda.

A key feature of the proposed curriculum reform should be the separation of the curriculum from its assessment (section 6). The curriculum would then determine what is taught and also what is examined and how. The curriculum would be developed within an overarching curriculum framework. This framework should specify the governing principles on which the curriculum would be built and implemented. In addition to the aims of secondary education, this framework would specify not only what is taught but also how it should be taught and how it should be assessed. It would specify the curriculum time balance between subject areas, how the teaching should address all abilities, what minimum resources are needed. Within this framework, subject statements would be developed. Some research will be required at an early stage to determine what the labor market requires in terms of the profiles of those graduating from the system at its different levels. These graduate profiles will need to be built into the curriculum framework.

The curriculum framework and the subject statements would then be used to develop recommended programs of study (and associated materials) for use in schools and also examination syllabuses. Both the programs (and their pedagogy) and the examinations should be appropriate for a wide range of abilities, both of which will therefore be novel developments in Uganda. These will have considerable implications for the training of examiners. school leaders and teachers.

A strong team will be required to take the Curasse reform forward (sections 4 and 5)**.** This should be directed by a high level steering committee able to make executive decisions and hence probably chaired by the minister of education. Such a steering committee would also include some key representatives from the private sector. The Curasse reform would be implemented by a technical working group answerable to the steering committee. A key feature of the technical working group would be a series of sub-committees established to develop specific elements of the curriculum. The whole process should be advised by a consultative committee widely representative of civil society. The technical working team would be treading what, for Uganda, is new ground and would benefit from external technical assistance.

Developing, implementing and monitoring the new curriculum will require the coordinated action by many of the institutions involved with curriculum development, assessment, teacher education, professional development and quality control. The capacity of these institutions to provide the support necessary should be assessed and gaps addressed (section 5). New programs, standards and procedures will be required by these institutions and they should be developed with the help of technical assistance, study tours, etc.

A timeline is proposed for the secondary curriculum reform. It identifies three kinds of activities:

> *Activities that are pre-requisites for planning the reform.* These include political decisions on the structure of secondary education and the principles that underpin its aims and content. They include the steps needed to establish (and fund) the necessary structures to carry out the reform and also the initiation of a capacity review. These should begin as soon as possible.
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> *Activities to lay the foundations of the reform*. These are mainly concerned with the development of the secondary curriculum framework and the clarification of the principles that underpin it. Also important are the steps to be taken by the various institutions involved – teacher education institutions, the standards agency, the examinations council, etc– to ensure that they are fully ready to play their role. These should happen within the first year of the reform process.
>
> *Activities that are part of the reform proper*. These include finalizing the framework, developing subject statements, developing programs of study, teaching and learning materials and sample question papers, etc. These should begin probably in the second year of the reform process.

Some actions will be needed to ensure that the immediate challenges posed by USE are addressed. Secondary curriculum reform of this nature typically take about 5-8 years to complete from initiation to the point where the first cohort through the new program leaves the system. USE cannot wait for this and therefore some interim measures are proposed to address the immediate needs of USE (section 8) which will, in any case, be ultimately elements of the reform.

Many middle- and higher income countries worldwide have been through this reform process in the last 2-3 decades. This is particularly useful because it means that the results of their reform endeavors (and even more usefully, critiques of them) are available on the Worldwide Web. Together they form a wealth of interesting and different examples from which Uganda can learn. A number of addresses are supplied in this document and search engines will reveal many more. It is proposed that steering committee members and key staff (selected technical working group members) undertake one or more study tours to look in more detail at international best practices. It is also advisable that Uganda could benefit from the necessary longer-term technical assistance by contracting one or more suitable curriculum and assessment institutions which have international experience. This would facilitate the process and also avoid the use of ad-hoc individual consultants. The Curasse reform process is a multiple year process, which should have agreement among the major stakeholders and be adjusted as implementation moves along. Support from international development partners would be greatly beneficial and would open up technical assistance sources that could provide guidance and advise as needed. Based on international experience it can also be concluded that when the Curasse Reform Roadmap starts to be implemented many aspects of the Uganda education system will be affected and would be subject to change in response. Also, curriculum change processes are continuous, and after this more fundamental change, Uganda's secondary education and training sub-system will need to continue to adapt in response to economic growth in the country.

1 Introduction.

This is a draft "Curriculum – Assessment – Examinations (Curasse) Roadmap for Reform" in Uganda. It was prepared a small team of experts comprising Andrew Clegg (Sr. Education Advisor, Namibia - UK), Jacob Bregman (Lead Education Specialist, AFTHD-SEIA, World Bank), Wout Ottevanger (Sr. Education Consultant, Vrije University Amsterdam, Netherlands), and The team visited Uganda between July 20 – August 4, 2007. The mission team was coordinated by Harriet Nannyonjo (Sr. Education Specialist. AFTH1, World Bank). Kasha Klosowska (SEIA Education Consultant, World Bank) assisted with research and provided overall support. The team worked in closely with the Uganda Ministry of Education and Sports (MOES) and consulted with MOES staff, secondary school principals and teachers, and staff from Ugandan Education Institutions and Universities. Support from the MOES management and NCDC staff is gratefully acknowledged.

Overall we found that the need for fundamental reform of the secondary education curriculum, assessment, and examinations system was strongly supported and hotly debated. This provided us with many "angles of reflection and creative ideas". The workshop with Ugandan educators, school principals and teachers, organized by the MOES, provided a rich forum for debate and many valuable "points of view". Nobody in Uganda underestimated the challenges that the country faces in view of the "surge" of primary graduates and the pressures of economic growth. One of the "red threads" that weaved through all our discussions with "practitioners" was the need to involve secondary school principals and teachers at an early stage in the Curasse Roadmap implementation, and to provide them with adequate training and professional support. This was earmarked as one of the critical elements for success and is confirmed by international experience.

The Terms of References (Annex K) for the Curasse Roadmap for Reform study were issued by the Uganda MOES. This draft report will be discussed further in meetings with the MoES and its stakeholders in the coming months. The report focuses on Uganda's secondary education and training sub-sector, and within that context exclusively on the Curriculum – Assessment – Examinations issues and inter-relationships. It is based on field visits, discussions with key Ministry of Education and Sports officials, a stakeholders' workshop, a survey among stakeholders and review of documents provided by the curriculum taskforce. A list of persons consulted can be found in Annex G and consulted documents and literature references can be found in Annex J to this report.

This report takes into account the conclusions and recommendations from the 3rd Regional SEIA Conference, held in Accra, Ghana in April 2007. Delegations from over 38 African countries and international development partners participated in this conference to discuss the future of Secondary Education and Training In Africa (SEIA). Reform in secondary education should start by considering what African students should learn and what their schools should teach in order to face the challenges of the 21st century and promote economic growth in the region. This requires a fresh approach to the structure of the curriculum, setting ambitious standards of learning, introducing modern assessment tools, and ensuring that examinations measure what they are supposed to. Uganda is one of the first African countries to consider far-reaching changes to its secondary schools in order to make its secondary system more compatible with economic growth and labor markets demands. Fundamental changes to the secondary education curriculum structure require agreement between the major stakeholders, intensive support for teachers and schools, and long-term commitment by decision-makers. International best practices point to an average period of 5-8 years for reform measures to "take root". For these reasons it goes without saying that a national Curasse reform requires a clear and transparent "Roadmap".

The report is divided into 8 sections. Section 2, after this introduction, provides a summary overview of the main reasons why the secondary curriculum reform. Section 3 discusses the main shortcomings of the existing curriculum in addressing the needs of the expanded intake into secondary

education. Sections 4, 5 and 6 propose mechanisms to address the problem issues at the political, institutional and curriculum levels respectively. Section 7 provides an outline of the roadmap. Section 8 recommends mechanisms for addressing a number of short-term difficulties consequent upon the decision to implement USE before an appropriate curriculum structure has been developed. The report also includes short technical annexes on key issues.

2 An overview; why Uganda needs a new secondary curriculum.

Uganda is at an educational crossroads. It is one of very few countries on the continent that has begun the process of revising its secondary education system to make it appropriate for the whole age cohort rather than a selected few. Moving from a system which served an academic elite to one which serves the whole age cohort is a major exercise that goes far beyond simply reducing the number of subjects on offer. This section outlines the reasons why a major revision is necessary. It should be emphasized that such a change will not undermine the way the existing system serves the most able, in fact it should improve it; the revision process most certainly should not 'throw the baby out with the bathwater'.

1 The teaching methodologies inbuilt in the existing syllabuses do not promote effective learning and acquisition of skills. Because the existing curriculum is largely a collection of examination syllabuses, their teaching is directed at achieving the highest grade in the examination as are the textbooks written for them. The examinations assess, in the main, knowledge only, with very few marks given for showing an understanding of how to apply knowledge. Skills remain largely unassessed, other than a very limited range of rather insignificant ones in, for example, science practical examinations. Hence skills remain largely untaught even when their mastery is a stated curriculum objective. Careful curriculum design, linked to effective assessment and learning materials, has been shown to be major factor in improving pedagogy. Importantly, active learning approaches that characterize effective modern pedagogy, value the existing knowledge of the learner and stimulate the integration new knowledge with it. Very little of this is reported to take place at this moment in secondary classrooms in Uganda and yet it is a cornerstone for creating the kind of competencies demanded by the 21st century changing workplace and roles in society.

2 The existing curriculum, for historical reasons, is greatly overloaded. Slimming down an existing curriculum is an almost impossible exercise as is evident from the many attempts already made in Uganda. This is exacerbated in Uganda by the lack of an agreed curriculum framework to guide the process. Larry Cuban of Stanford University has suggested that this process is somewhat more difficult than landing a man on the moon. (He has also suggested–equally relevant to the Ugandan situation–that curriculum developers should be wary of all sorts of demands from society that will unnecessarily lead to a cluttered curriculum, or as he succinctly put it 'Schools should not feel obliged to scratch the back of society every time society has an itch.'[1]) The current curriculum overload cannot be corrected by simply merging and removing content.

3 The existing curriculum does not address the needs of the majority of students now entering secondary education. The existing curriculum is exclusive; it is a filtration system for excluding all but an academic elite. Failure rates, particularly in key subjects such as mathematics and physics are unacceptably high; reportedly as high as 50%. The revision should so structure the curriculum that it will be inclusive; it should address the needs of all children and also lay the foundation for an improved pedagogy (and assessment procedures) that will allow learners more effectively to realize their full potential, however limited. In short, it should be an effective instrument for driving up standards rather than one that merely sets such standards.

[1] Cuban, L. (1992). Curriculum stability and change. In P. Jackson (Ed.), *Handbook of research on curriculum* (pp. 216-247). New York: Macmillan.

4 The existing secondary curriculum does not adequately address the social and economic needs of the country. Uganda, like the rest of Africa, is experiencing a period of steady economic growth. Sustaining this will require a flexible and technologically literate labor force at all levels. There is much evidence that the existing curriculum is not addressing these needs adequately. More evidence should be collected to throw more light on this as part of the process to develop the new curriculum framework. It is not the very top academic cadre that contributes most to GDP growth but the much larger cadres of competent middle-level technicians. It is these groups in society that the current system does not serve well. The expanded secondary curriculum should be designed to meet their needs as well as those of the academic elite.

5 The existing curriculum is not sufficiently flexible to address emerging fields of knowledge. The existing curriculum dates from the 1970s. Much of its content and the pedagogy it promotes betrays its age. Periodic updating has introduced more modern content but little has been removed to make room for it; this is a major factor contributing to the current overload. This process has now reached its limit and it is unable to accommodate the increasingly large changes demanded of it so that it adequately addresses emerging fields of knowledge, particularly those related to technology (for example, areas of the science curriculum significant by their absence include earth sciences, space science, electronics and logic circuits.) A new curriculum will not only allow a new start to be made to ensure that these areas are included, but also will permit a much more dynamic design so that future changes can more readily be accommodated.

6 Key characteristics required of the 21st century curriculum are missing. The existing curriculum (in common with that of many countries that are either developing or in transition) is a static one in which learners, driven by the need to succeed in a high-stakes examination, are forced to learn a mass of knowledge that is largely abstract, fact-centred, decontextualized and irrelevant. The deep conservatism of the curriculum which has remained unchanged except in small detail for some 30-40 years contrasts dramatically with the rapidly changing demands made of the 21st Century workforce. The challenge is to create a curriculum that builds metacognitive abilities and skills so that individuals–and the country–are better placed to adapt to the changing workplace and their changing roles in society.

What this means for the curriculum is that there must be a major move from ‘knowing that’ to ‘knowing how’; a move from absorbing factual knowledge to developing knowledge competencies. This includes, for example, abilities to;

- learn how to learn and learn how to think and be self-directed learner and
- be an innovator and problem solver;
- access and critically evaluate knowledge, selecting information that is useful from the mass of information that increasing floods 21st century society;
- work constructively in teams;
- develop active and productive citizenship skills and be globally aware;
- apply knowledge and skills effectively to novel or difficult situations;
- create, change and transfer knowledge;
- communicate knowledge effectively using a variety of media.

These are all rather abstract-sounding competencies but well-constructed and organized modern competency-oriented curricula are able to build all of them into clear curriculum statements across the range of subjects and years. Modern assessment programs are able to assess them and, above all, well-constructed interactive teaching and learning materials and methods can emerge that are appropriate for inculcating them.

7 The unit costs of the existing system are unsustainably high to allow it to expand much further within the existing resource constraints. It costs roughly 7 times as much to teach a learner for a year in secondary school than in primary school. There are a number of contributory factors to this. One factor is the low PTR due in part to low teaching loads but also to small numbers in many optional subject classes. Another reason for the high unit cost is the high cost of many of the subjects as they are currently taught (and examined), particularly technical, vocational and science subjects.

The curriculum review should aim to remove many of the inefficiencies that are built into the current system. It should address inefficiencies associated with implementation, those associated with the system structure and also those associated with the cost-effectiveness of teaching individual subjects that are built into the curriculum statements (for example, the existing science subjects are typical of the high cost syllabuses characteristic of the 1970s).

These points are elaborated further in the following sections. Section 3 looks in more detail at these challenges and Sections 4, 5 and 6 propose solutions to the challenges at the political, institutional and curriculum levels. In these chapters, the word 'curriculum' is used as meaning a 'plan for learning'. This, of course, is much more than merely the documents that describe the plan. The definition embraces the three levels of the "intended curriculum" (as stated in the documents), the "implemented curriculum" (as it is interpreted by the teachers and operationalized in the classroom), and the "attained curriculum" (as expressed in learner outcomes. This concept of the curriculum is expanded in Annex A. It follows that planning a curriculum revision, if it is to be a purposeful exercise, involves much more than simply rewriting syllabuses and related documents.

3 Challenges posed by the existing secondary education system

This section elaborates the challenges faced by the secondary curriculum reform that were outlined in section 2.

1 Issues related to the operation of the educational system

The greatly increased influx into post primary education is imposing a substantial strain on the system. Implementation of a program to increase access to post primary education has led to an almost 50 percent increase in senior one enrolment (S1) in just one year. This has been a consequence of the need to absorb the growing number of primary school leavers emerging from universal primary education. It is also a consequence of the recognition that secondary education graduates are one of the key ingredients to build and expand the human capital needed for economic growth and social development. Existing school buildings and teaching staff numbers will not be sufficient to respond to this increase through to S4 and radical measures will be required such as double-shifting to provide physical accommodation and emergency retraining in shortage subjects to provide teachers. The existing curriculum, designed for a narrow academic elite will prove increasingly inappropriate for this USE intake and is a major cost driver. This will require both short-term emergency solutions and longer term solutions built into the new curriculum that will eventually emerge.

Large variations in access and quality are evident countrywide. The curriculum reform should take into account the current inequity in both access and quality in the Uganda SE system. Only 6 per cent of children of the poorest 25 per cent of families complete secondary education, compared with 22 per cent from the richest 25 per cent. There is a considerable difference in the performance of the elite schools, most close to Kampala, and the remoter rural schools. This is not solely a methodological and resource issue, it also requires a curriculum that is sensitive to the needs of all learners (included the most gifted and talented children). At implementation level of the new secondary curriculum financing needs should be considered. The government would most probably want to ensure that the poorer rural and urban schools would receive more resources at first, until an equalization level is reached. In general, the funding mechanisms and incentive system for quality-delivery of SE public and private schools in Uganda will require some thinking and planning. Many countries work with formula-funding. This system would have to be developed in Uganda, in a way "by doing the funding system can be renewed and re-invented". Of course there will be some powerful "current interest groups" that would want to protect the status-quo situation. However, this "natural resistance" can be overcome if a broad national forum for discussions with major stakeholders is established. To face the economic demands, most of the inequities between secondary schools would need to be minimalized, while competition for better quality and greater efficiency of delivery should continue to be encouraged. Of course, this requires that "what is the quality and efficiency we seek as a Uganda society and economy" would need to be redefined.

Aligning the SE curriculum with reforms in primary education. The SE curriculum reform efforts must align with the new thematic primary curriculum. Scope and sequence charts for all subject areas should be drawn up to show clear progression through all years, from P1 to S4.

Aligning the SE curriculum with international benchmarks. The existing curriculum has remained largely unchanged for many decades. Since that time international quality and relevance standards and benchmarks such as those of TIMSS and PISA (OECD) and international English language proficiency standards have emerged and much research has thrown light on how curricula should be

designed for effective learning. These have emphasized deficiencies in the existing curriculum structure and addressing these should be elements of the design specifications for the revised curriculum.

Addressing the needs of all abilities. The existing SE curriculum caters only for a narrow academic elite. Partly as a consequence of this, S4 failure rates, particularly in subjects such as mathematics, are very high, representing a substantial wastage of resources. A major challenge for the revised curriculum is how to address the needs of the full ability range and how to include mechanisms for the early diagnosis of learning difficulties.

Class size and effective pedagogy; how to balance the trade-off between quality and quantity. An effective practical pedagogy is incompatible with very large class sizes. Unrestrained admission to schools under USE will inevitably impact on quality. While it would be possible to create a secondary curriculum that to an extent is responsive to the pedagogical limitations posed by very large classes, this would mean that key practical elements would be largely excluded. A challenge for the USE plan is how to develop achievable staffing and accommodation norms and standards together with target dates for meeting them. In parallel, the school programs of study that evolve from the new curriculum will have to address the reality of large classes through options such as small tutorial groups to complement them, the use of ICT, special needs programs, etc. Already existing best practice can be emulated.

Aligning the curriculum with the needs of further education, the workplace and society. A significant issue is that these needs are not well understood or documented and a pre-requisite for the SE curriculum development exercise should be a survey of market needs to rectify this and to provide a graduate profile for those leaving secondary education at the different exit points and this in turn will feed into the overall aims and objectives of the curriculum and those of its subject areas. A different, but related, challenge is to ensure either that the new curriculum addresses the entry needs of further education, or (more difficult but more satisfactory) that the entry requirements of further education are adapted to the new graduate profile of the new secondary education.

Reducing the high unit costs of secondary education. SE unit costs are now around 7 times primary unit costs. A sustainable ratio, which should be a target for the reform, should be around 2, or even less. Reduction of this will require a multifaceted strategy, only part of which is linked directly to the curriculum. The high cost of the 4-2 structure of secondary education is a major problem. Other structures can be envisaged that are more cost efficient. (Annex B). A study of how other countries have addressed the trade-off between cost and quality would provide valuable information for the reform process.

Reducing the cost of the secondary curriculum. To an extent, curriculum reform can reduce the unit costs of secondary education by reducing built-in cost drivers, (particularly if they are generally regarded anyway as redundant such as in the case of the high-cost science curriculum). But systemic reforms will also be needed such as reducing, or even eliminating, the number of high-cost options in the formal SE system most of which are vocational. A revised educational structure under which, high-cost vocational and trades subjects are moved to more cost-effective vocational institutions after S2 should be considered as a priority. A lower cost pre-vocational compulsory program in the formal SE system, taking up for around (say) 15-20% of the curriculum time could be envisaged but this whole area of the relationship between vocational education and academic education represents and unsolved issue that should be revisited as part of the SE and TVET reforms; solutions are possible, but probably not within the conventional structures of either component.

Sufficient support will be needed by good low-fee private schools. The existence of a large number of private secondary schools must be seen as a strength of the existing system; it is an effective cost-sharing mechanism. The low-fee private schools are an important part of the USE program and it is

vital that the capitation allowance they receive is not too small to allow them to flourish and to permit viable programs that ensure that classes are not too large to impact seriously on quality. Fixing this capitation allowance at a sustainable level will require some detailed monitoring as the revised curriculum is implemented; current evidence suggests that the capitation support may be too low.

Ensuring ownership of the main reform principles by the main stakeholders is crucial for success. School principals, teachers, parents, and professional organizations (unions, teacher training colleges, employer organizations) should be 'on board' regarding the key principles of the reform. The difficulty of this task should not be underestimated and will require considerable political skills and courage and time. It is made particularly difficult by the fact that the reform can easily be misperceived as the erosion of quality. It is no coincidence that such reforms in other countries have been greatly aided by external factors such as the need for a rapid economic recovery after conflict or, as in South Africa and Namibia, the over-riding need to address apartheid inequities.

The capacity of those driving the reform. The reform is a major exercise. It will necessitate both elements of reorientation among decision makers and capacity development, both human and institutional, among those tasked with doing the work and with monitoring it. Both these demand early needs assessments followed by the necessary action; all involved must have an agreed clear vision of what has to be done, the measures needed to do it, how the measures will be implemented and by whom. Experience elsewhere has shown that it is crucial that this process must include teacher education institutions.

Quality assurance mechanisms remain inadequate. Despite positive developments in the effectiveness of the inspectorate, it is still inadequate to monitor the implementation of a secondary curriculum change while it is still fully involved with the same task in the primary phase. Novel monitoring mechanisms will be required.

Teacher supply does not meet the demands of USE. The country is currently oversupplied with teachers in some areas of the curriculum and under-supplied in others, particularly the sciences and mathematics. Redressing this balance early will be essential if the curriculum reform is to succeed, not least to avoid significant retrenchment of teachers in contracting subject areas. Current teacher education programs are 'front-end-loaded' with a relatively small (by international standards) school practice and the post-training probationary period, although it exists, does not seem to have much meaning. This, together with the minimal support for continuous professional development, implies that teacher training is seen as once-off process; a teacher once trained is trained for life. Countries that have developed modern responsive curricula have realized that teacher education is a lifelong process in which the initial teacher training programs are but the beginning. Further, the country will need to develop teacher education standards against which the effectiveness of teachers and professional development programs can be evaluated. A sound foundation for quality in teaching and learning should be used to upon which to build an effective and innovative SE curriculum reform.

USE teacher cost will be unsustainable without planned cost-reduction measures. Although planning adequate teacher numbers would not normally regarded as an element of a curriculum road map, it is undoubtedly the case that many of the inefficiencies currently evident in the system (low PTR, long teaching days, small classes) have arisen as a result of the development over time of an increasingly complex and overloaded curriculum. Efficient teacher deployment must be one of the design specifications for the new curriculum. Equally, the teacher education and support process will require a radical overhaul if it is to continue to meet the demands in a cost-effective manner of a dynamic curriculum into the future.

2 Issues related to the operation of the existing secondary education curriculum

Increased access to post primary education has led to almost 50 percent increase in S1 enrolment over just one year. Failure to absorb the growing number of primary school leavers will undermine Universal Primary Education and broader national goals like the elimination of poverty. SE graduates are also one of the key ingredients needed to build and expand human capital for economic social development. However, the current SE curriculum is regarded as good at addressing the needs of a small elite opting for further academic studies at the tertiary level. (A recent workshop of SE stakeholders pointed out that Ugandans work overseas in high profile jobs much to the satisfaction of their employers). With the present USE strategy in place, it is now necessary to reform the SE curriculum to accommodate the needs of the much larger and more heterogeneous group of students. The existing focus results in unacceptably high failure rates, particularly in subjects such as mathematics and science. The revised SE curriculum should address the needs of all abilities and the examination system should reward achievement (however limited) rather than create failures. This will not only require a major re-evaluation of what is the appropriate content of a modern curriculum but will also necessitate the development of a wider range of assessment tools appropriate for the wider range of competencies that will become more significant in the expanded system.

The absence of any overarching guiding curriculum document is one reason why the existing curriculum is not able to meet the demands of the economy. There is no framework overarching the various subject syllabuses which (among other things) outlines the overall learning goals, the general education goals defined in the White Paper on Education, or the profile of graduates from the system. The absence of such a document means that the schools use the examination syllabuses as their curriculum. This, in turn, means that many key skills and competencies are not taught simply because they cannot be (or are not) readily assessed. Most countries that have undergone a successful reform have delinked the curriculum from assessment.

The SE curriculum is overloaded and anachronistic. Overload is evident from the number of subjects in the curriculum (41 and recently reduced to 22) and by the observations in the Chief Examiner's reports that – in spite of 50 teaching periods per week – complete syllabus coverage is seldom achieved. The SE curriculum is outdated in its strong emphasis on subject content at the expense of a focus on marketable skills and competencies. It is also anachronistic in that many subjects, most particularly the sciences, have failed to reflect not only major epistemological and philosophical changes in our understanding of the subjects over the past half century but also changes in our understanding of what constitutes the important elements of knowledge that school syllabuses should reflect. This is particularly evident in the A-level sciences.

The teaching styles promoted by the overloaded content-heavy curriculum are do not generate the skills needed by a 21st century workforce. The prevalent teaching style is almost solely in the form of teacher dominated classroom with silent learners. It is driven by the need for learners to succeed in a high-stakes examination where success is determined in the main by an ability to learn a mass of knowledge that is largely abstract, fact-centred, decontextualized and irrelevant. The challenge is to create a curriculum that promotes teaching styles aimed at building the key metacognitive abilities and skills necessitated by changing workplace skills and changing roles of individuals in society.

Textbooks are oriented towards the kind of rote learning and mechanical exam question answering that conspire to ensure good marks but minimal understanding of the subject. May of the science textbooks, for example, are published in England and date from the 1940s and 1950s when English science syllabuses were content laden serving examinations that promoted rote learning and the solving of routine problems by the application of algorithms. New locally produced textbooks are, inevitably, in largely the same mould. The curriculum revision must seek to break out of this cycle to produce well-organized modern competency-oriented curricula that lead in turn to interactive

teaching and learning materials and methods and assessment programs appropriate for monitoring them.

The approach of reducing/merging subjects starting from current situation will not lead to the kind of curriculum required by the country. Recent reform efforts took the approach of attempting to reduce the overall number of subjects mainly by grouping existing ones. This has not reached a satisfactory conclusion in part because there has been little consensus on what should be removed from the curriculum to lighten individual subject load. Lessons from elsewhere (Namibia, South Africa) and, given the lack of an existing curriculum framework, suggest that a much more productive mechanism would be to start from a clean slate, based on aims of secondary education, and develop criteria for inclusion rather than removal of subject components. This would also allow developers to take cognizance of international trends and benchmarks.

The SE curriculum fails adequately to address contemporary needs. Over the past 30 years the SE curriculum has only been changed by adding content. In spite of new subjects and new content being added, important major areas remain excluded. Some key areas in the sciences such as earth sciences, an area of emerging economic significance, have no mention. This kind of revision has significantly failed to address changes in the needs of society at a local and national level which ask for students who also have the necessary generic skills on which employers can build. The revised curriculum should be dynamic and be capable of rapid changes in response to such needs. In particular, it should be able to embrace fully and quickly, emerging subject areas such as ICT

Many subjects in the existing curriculum are expensive to teach effectively. This is particularly the case with the sciences and vocational subjects. Good modern science teaching methodology makes considerably less demand on expensive facilities and equipment. The cost of teaching is best taken into account in the curriculum design rather than be seen as a compromise exercise when the teaching schemes are developed. The cost effectiveness of practical examinations should be examined carefully; tested examples of better, more effective, and less costly alternatives are available.

There is a danger that important cross-cutting curriculum elements fail to receive due attention. In recent decades many important topics have emerged that have no single natural home in the curriculum. These include democracy education, HIV and Aids, health education and environmental education. They are best taught by integrating them in 'carrier subjects' across the curriculum. This must happen in a systematic manner and they should be assessed. The revision process offers an opportunity to evaluate the current situation and ensure that the issue is properly addressed.

Prevailing assessment methodologies are inadequate for an expanded entry. The O-level examination is a norm-referenced examination testing mainly knowledge and a limited range of competencies. It is directed at a limited range of abilities and is a pass/fail examination. This is not an appropriate assessment mechanism for a curriculum that addresses a wider range of abilities. Neither is it suitable for a curriculum which demands that a wide range of competencies be assessed. A revised system is needed that rewards achievement (however limited); is criterion-referenced, assuring that standards are maintained year by year; tests the application of knowledge; tests an appropriate range of skills and uses a diversified range of assessment techniques. The examination syllabus should be derived from the curriculum documents rather than the other way round.

There is an acute shortage of good learning materials. It has long been recognized that the provision of good textbooks in adequate quantities can have a major impact on the quality of the system. The recent study on textbook revision made a number of proposals for ensuring a better supply of textbooks but did not address the issue of quality. Current textbooks, particularly in the sciences, date from as far back as the 1940s. They promote rote learning without understanding and have a very high language demand. Further, the examinations reward this kind of learning and so high grades can be gained with little understanding of the content and even less understanding of how to

apply it. New, locally produced textbooks are similarly constructed and they are similarly exceedingly dull and unreadable. Breaking this mutually conspiratorial cycle will not be a simple matter. It will require very clear textbook evaluation guidelines and a program of local author, illustrator and designer training; a key element of any reform that is often neglected and leads to the dependence of publishers on foreign authors

Capacity to develop sound teaching schemes by individual schools is limited. The development of study programs are usually left to individual schools and it is reported that there is a wide variation in the ability of teachers to develop sound teaching schemes from the examination syllabuses. Only in a few subjects have examples produced by the ministry.

4 Addressing the Challenges: Political level priorities

This is the first of three sections that examine possible mechanisms for addressing the challenges posed in section 3.

1 Establishing a steering committee to oversee the reform process

Effective implementation of USE under existing conditions will not be possible within the existing resource envelope if current education funding levels and the proportion going to support secondary education are maintained. Neither will USE be effective within the current curriculum structure. The changes needed to enable effective implementation will require a number of key political decisions to meet the challenges already outlined. These will include decisions on secondary education structure, on roles and responsibilities to manage the change and on resource allocations.

It is desirable that steering committee should be established to drive the SE curriculum change process. It must be at a sufficiently high level to be able to make executive decisions.

The first task of the steering committee will be to ensure that the foundations are laid upon which the curriculum change can be constructed. This will include:

- ensuring that a fully costed roadmap of the process is in place,
- making a number of key policy level decisions with a broad national consensus
- oversight of the necessary structural changes in the secondary education system;
- decisions concerning the overall structure of the new SE curriculum;
- oversight of the media campaign to ensure there is broad consensus on the reform;
- oversight of the SE curriculum development process
- making decisions on resources allocations to the reform process and their use

2 Tasks of the steering committee

1 To make decisions on structural changes in the SE system

A secondary education structure will be required that is appropriate for the effective expansion of the system. The two major failings of the current system have been widely reported are that it addresses the need only of a narrow academic elite cadre and that its unit costs are unsustainably high (around 7 x those for primary education). These must both be addressed by the reform and an effective mechanism for doing this would be to revisit the structure of secondary education.

Compulsory basic education of 9 years

In line with the practice in many developed and middle income countries (where Uganda aspires to be in the next 10 years) compulsory basic education could end at what is now S2. This would provide 9 years of basic education with a cost effective curriculum in which almost all subjects are compulsory. The two tables below indicates international trends towards this goal. The first (table 4.1) shows the proportion of countries in different regions that operate a basic education cycle which is distinct from the upper secondary cycle. The second table shows at which year this transition is made. The tables show that by 2000 most countries had adopted a system of 8-10 years basic education followed by 2-3 years upper secondary education.

Table 4.1: Percentage of national education systems in each region that differentiate between lower and upper secondary education (number of cases in parentheses)

Region	1960s	1980s	2000
Latin America & Caribbean	91 (22)	74 (34)	71 (34)
East Asia and Pacific	92 (12)	79 (24)	76 (21)
Sub-Saharan Africa	80 (30)	80 (44)	81 (47)
Middle East & North Africa	87 (15)	100 (18)	83 (18)
South Asia	100 (4)	100 (8)	100 (8)
Eastern Europe and Central Asia	50 (8)	33 (8)	85 (27)
Advanced Industrialized Countries	73 (26)	92 (26)	97 (29)
World Totals	81 (117)	81 (163)	82 (184)

Source: UNESCO-IBE, 2005; UNESCO, various years. World Bank regional classification reported in Benavot (2006)

Table 4.2: The frequency of structural arrangements of upper secondary education

Starts in grade:	Duration in years	Number of countries (out of 186) in which specific structural arrangement exists
10	3	49
11	2	30
9	4	26
10	2	24
11	3	20
10	4	14
9	3	11
9	2	4

Structures of upper secondary education vary across (and within) regions. Several 'models' of secondary schooling, some reflecting earlier colonial structures, have emerged over time (Benavot, 2006).

If Uganda were to adopt a basic-upper secondary transition after 9 years, the new junior secondary level (old S1 and S2) will then represent a continuation of the primary curriculum but taught in subjects rather than themes. Ending basic education after 9 years would place Uganda in the shaded row of table 4.2. Not many countries follow have opted for this because not many countries follow the English A-level model of 13 years of schooling. The most common model involves only 3 years after S2 leading to a broad based senior secondary certification after year 12. South Africa and Botswana, two of the few countries in SSA which have recently undergone USE reform, have both adopted this model.

The junior secondary level within the 9 years of basic education could be of two or three years duration; in the latter case, transfer from primary will take place after P6. The formalization of the existing optional pre-primary (K) year (reportedly already taken by some 50% of children) would be a very cost effective way of raising the quality of primary education. The primary leaving certificate examination could then be phased out (or turned into a quality monitoring test) and replaced by a new junior secondary certificate examination at the end of S2.

It is recognized, however, that one function of the PSLE will still be needed; to select for elite secondary programs. Other countries either maintain a less formal primary leaving examination for this purpose or institute a predictive test (as opposed to an attainment test) for selection into such fast tracks.

Education after the compulsory basic education cycle of 9 years.

After leaving compulsory basic education (at the old S2 level), students would have opportunities either to enter the job market directly, or proceed to senior secondary studies (now post-S2) or to enter vocational training institutions. For cost reasons there will be few vocational opportunities in secondary schools and the O-level examination of vocational subjects will naturally be phased out as vocational assessment is taken on by the VQF. Equally, for cost reasons, it does not make sense for students to wait until after S4 to enter vocational training as these extra two years of formal study add little value to the education of students entering a vocational track.

It would be possible for some S2 graduates to proceed to institutions such as primary- / basic teacher education colleges for a two or three year program leading to a teaching qualification.

Further reforms of the (post S2) senior secondary system are also desirable to bring down unit costs, to open the system to learners with a wider range of interests and abilities, and to better match the S4 graduate profile to market needs. A cost effective reform would be to replace the current costly O- and A-level with a single stratified qualification with ordinary and higher levels. This system can be found in countries like Scotland, South Africa and Namibia.

Comprehensive versus selective secondary education

A rather different approach to secondary expansion can be found in countries like the Netherlands, France and Germany in Europe and many of the Asian 'tigers'. This involves a selection process, usually at the end of around 6 years of primary education (sometimes before). Learners are placed in different tracks, typically three, an academic track, a vocational track and a track for those who will subsequently enter the bottom end of the labor market. The box shows an interesting selective system for Singapore which has 10 years of compulsory schooling. There are two routes to O-level, one four and one five years after 6 years of primary education. In addition there is a four year technical track.

An important lesson from the Singapore model is the need for a new broad assessment system appropriate for all abilities. This model has a separate 'N-level' examination suitable for lower ability tracks as well as

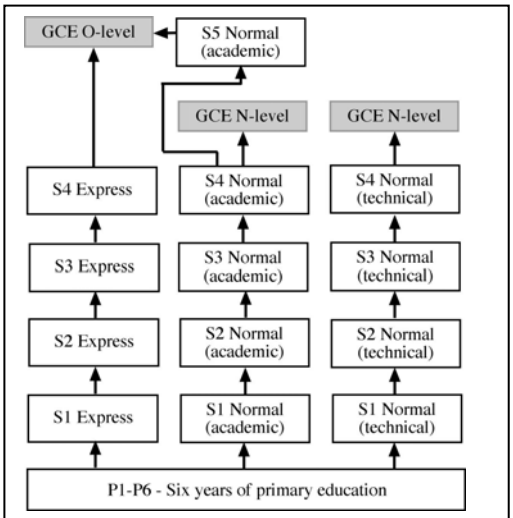


Figure 4.1 The structure of secondary education to O-level in Singapore

the more academic O-level. In comprehensive systems this is normally addressed through a single system that can cater for a wider ability range.

Selective systems cause much debate. It is always very evident that although selection is determined by transparent testing, in its operation the process inevitably favors children of higher socio-economic status. In many countries this is also linked to race and this is one reason why such a system was not considered by, for example, South Africa and Namibia when they emerged from apartheid regimes.

A often-quoted argument in favor of a three-track system is that it provides a clear track for an academic elite. Experience in countries that have abandoned it or have never adopted it (Scandinavia, the US, England) suggests that a non-selective system can equally adequately support such an elite with the additional advantage that late-developers have a greater opportunity to achieve as they are not locked into a slower track.

A more detailed discussion of possible options can be found in Annex B which also shows some more international comparisons.

2 To make decisions related to the curriculum structure

Developing a curriculum that is appropriate for the expanded secondary system will require a number of key decisions before the technical level can begin work on the details. Firstly, the profile (or profiles) of the graduates of the system must be clearly defined. Secondly, based on the graduate profiles, the aims and objectives of the SE curriculum should be revisited and made appropriate for Uganda's 21st Century needs. The nature of the key skills and competences to be developed by the curriculum can then be defined and knowledge areas identified. Thirdly, these will, in turn, determine issues such as the subject area mix, what subjects should be compulsory and what optional, and the proportion of the curriculum time devoted to each subject area at each level. Fourthly, decisions will be required on how the curriculum statements will cater for the needs of all abilities. Options for the curriculum structure are discussed in more detail in section 6 and Annex C.

3 Oversight of the consultation process

The steering committee may have, sitting on it, some key members from civil society who will therefore be fully involved in the direction of the process. Wider consultations will, however, be necessary. These consultations should centre around establishing a clear definition of the graduate profiles–what the 'users' want out of the system–rather than involving civil society representatives in detail of the reform which are best left to the professionals. The establishment of a consultative committee widely representative of civil society is useful mechanism for formalizing this process.

4 Oversight of the media campaign

A media campaign directed from the highest level will be needed to ensure that the curriculum reforms are welcomed. In addition, the steering committee must put in place mechanisms to ensure that society is widely consulted as part of the SE curriculum development process.

5 Oversight of the SE curriculum development process

A strategy document should be commissioned by the steering committee which defines the roadmap for development and implementation of the new SE curriculum and provides guidelines for the technical levels and also for other professional groups involved in the implementation such as teacher education institutions, the Learning and Teaching Quality Standards Agency and schools.

This is a major and long term reform which will initially be little understood by the public and the strategy document is a crucial element both to guide the process and inform the public. South Africa, for example, chose to produce a White Paper to guide its reform.

This strategy paper should include, as well as the roadmap, the rationale and goals for the reform, the mechanisms set up to execute it, the membership and ToRs of the working group and its sub-committees established to execute the process. It should clearly define the roles of all institutions involved in the development and implementation of the reform.

The management structure for developing the new SE curriculum structure might look like figure 4.2. It is suggested that the chair of the working group should represent the secondary education directorate and that NCDC should function as its secretariat. Secretarial resources and office space will be needed in the medium term to support the process. The SE curriculum consultative committee is proposed to advise on key stages in the process. It should be widely representative of commerce, industry and civil society.

Because of the nature of some of the decisions that the steering committee will be called upon to make and enforce, it is important its membership should include those that can take executive action. The chair should probably be the minister; a task that can be delegated according to the agenda on a meeting by meeting basis.

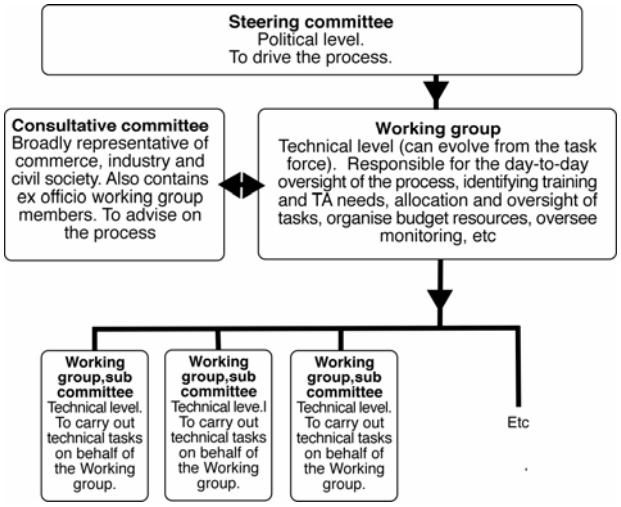


Figure 4.2 - A management structure to drive the SE curriculum reform

The technical working group will be responsible for executing the tasks needed to reform the curriculum and the key elements in this process will be the technical working group sub committees. There will be many of these established to work on the fine details of the reform. Many will find that they need to commission research or consultancy assistance to execute their role effectively.

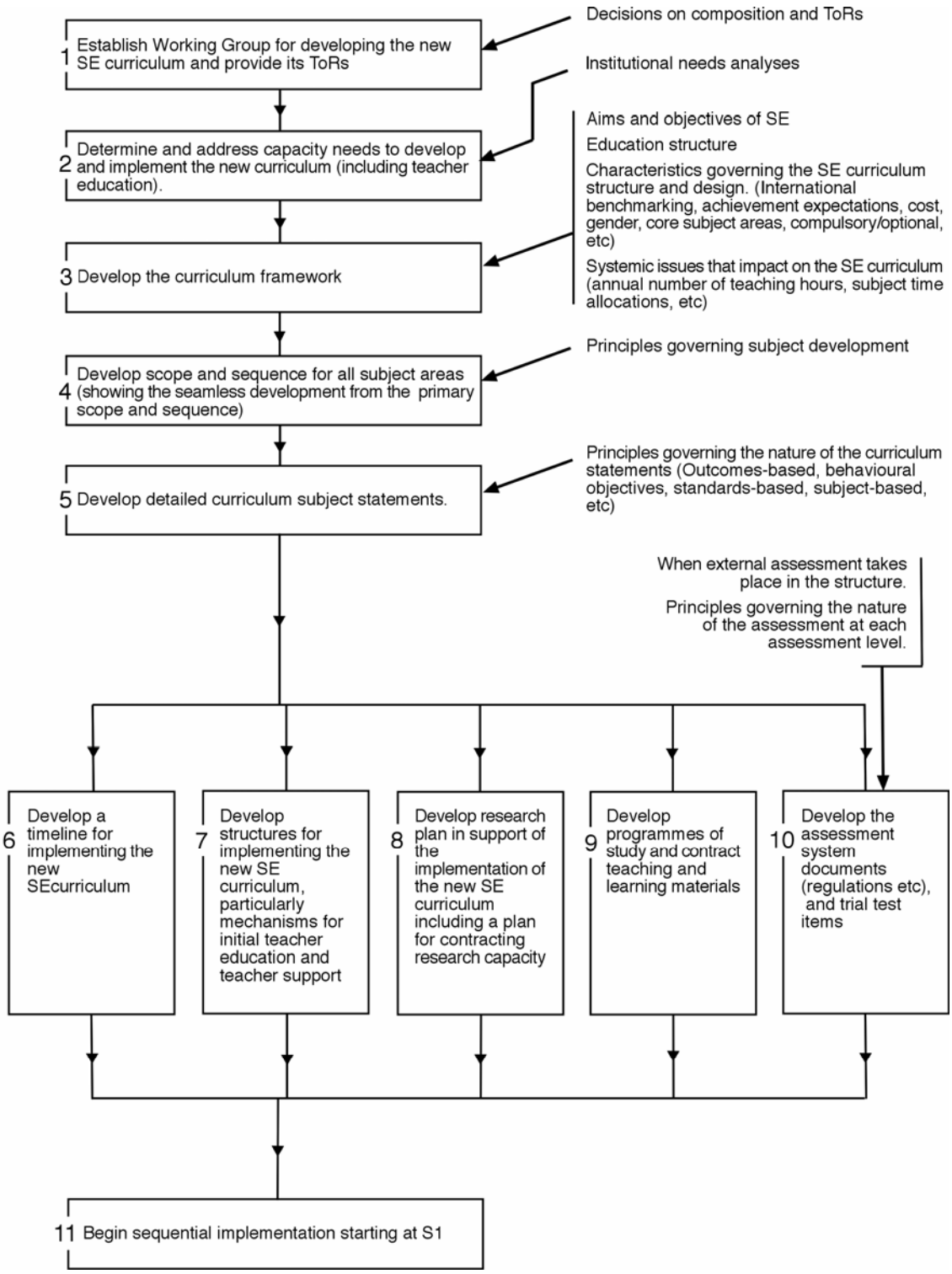
There will be sub-committees looking into the rewriting of the detailed curriculum statements in each of the subject areas. These would look at examples of curricula elsewhere and at international benchmarks. They will also have to consult widely in civil society and, in particular, among those institutions that might have a legitimate concern about the details of any subject taught (such as tertiary education institutions). They should also have a sound understanding of the major difficulties that Ugandan learners have experienced in the subject in the past, together with an understanding of how similar problems may have been surmounted elsewhere.

An important sub-committee, for example, would be on teacher education. This will have to examine in some detail the existing teacher education programs, their efficiency and their capacity for reform to address the needs of the reformed curriculum. Such a committee would also logically look at what is required to create an adequate professional support mechanism to help the teachers during the period of change.

Figure 4.3 below shows a flow chart that illustrates the process of the curriculum revision and the decisions (shown on the right of the chart) that will be required of the steering committee leading to the delivery of the necessary inputs.

At an early stage an institutional needs analysis must be commissioned, probably executed by TA familiar with the process. This will assess the institutional and personal capacity of all involved and make costed proposals to rectify deficiencies.

Figure 4.3 Flow chart showing the curriculum revision process and key inputs



5 To Make decisions on resources allocations and use

Decisions will be required on resource management and the cost-efficiency of their use This will include ensuring adequate resource provision for the curriculum Roadmap (training and TA will be the main cost drivers), implementation transition period, provision of teaching and learning materials. Resources will also be allocated to meet the cost of implementing the roadmap.

3 Summary tables showing the political level priorities.

The following table classifies the political level priorities into short and medium term activities. They also show the anticipated output or outcome of each activity.

Process (What and how)	**Time schedule**	**Products (Outcomes)**
1 Tasks of the steering committee: Political leadership decisions		
Compose the steering committee that will drive the SE curriculum change and undertake overall supervision of the process. Create the executive structure (working group, etc)	*immediate short term*	Operational steering committee and executive structure
Make decisions on SE structure change (for lower- and upper secondary cycles) • Commission a Policy Briefing Paper summarizing the reasons for the proposed change (in broad terms of economic and social needs), the options that are under consideration, and an outline of the process that will be followed. • Do overall cost-benefit analysis and resource allocation forecast (contract out) • Review key social and technical implications of SE structure change • Define new structure of Uganda's SE system	*short term*	Secondary education structure determined
Agree criteria for Curriculum Framework through a system of wide stakeholder consultations • Commission a labor market survey to assist with the development of a SE graduate profile • Oversee the formulation of the desired graduate profiles for each phase.	*short term* *short term*	Criteria developed for curriculum framework Labor market survey
Supervise MoES media campaign	*short term*	Well-informed population
Agree a Strategy Paper that provides the guidelines for the technical levels to	*short term*	Strategy paper for the reform

develop the curriculum details and all aspects of the implementation process. This may take the form of a White Paper		
2. Tasks of the steering committee: Develop a management structure and assess capacity		
Establish a Working Group that will supervise and guide the technical process of the SE Curasse Roadmap implementation (NCDC, ESA, UNEB, University Research, International TA). The tasks of the working group and its sub-committees will include: • Producing TORs for various technical Working Group sub-committees, TAs etc • Reviewing institutional capacity in the light of the required expertise and competencies • Providing budget resources for the Working Group sub-committees • Providing guidance on monitoring progress, indicators and reporting • Commissioning surveys and studies as necessary (textbook provision, institutional needs analysis, etc) • Developing the new SE curriculum • Producing a working manual on implementing the new SE curriculum for Schools, Teacher Education Institutions (pre-and in-service), etc	*Immediate short term* *Short term* *Immediate short term* *ongoing* *ongoing* *ongoing* *medium term* *medium term*	Curriculum reform management structure in place with ToRs Capacity review Surveys New SE Curriculum Implementation manual
3. Tasks of the steering committee; Deciding on Resources allocations and use		
Decisions on resources management and the cost-efficiency of their use (including ensuring adequate resource provision for the curriculum implementation "transition" period")	*ongoing*	
Learning and Teaching materials provision (including principles of SE textbook policies)	*medium term*	
Applying equity criteria into the Curasse reform	*ongoing*	
Providing budgetary resources to the process(budget coming from MoES and EFAG and other sources?)	*ongoing*	

5 Addressing the challenges: Capacity and institutional development for facilitating the curriculum reform process

For an effective curriculum reform process a number of facilitating components need to be put in place. These focus on the coordination of the process as well as on developing capacity, both at institutional level and for individual staff. The following are suggested:

- Establishing a Working Group to supervise and coordinate the process;
- Review and address the institutional capacity needs;
- Review and address the staff development needs;
- Establish modalities for in-service education to address the needs of teachers arising from the change to the revised curriculum.
- Strengthening school management to deliver the new curriculum
- Strengthening EMIS as part of the monitoring and evaluation of the implementation process.

The input of Technical Assistance is recommended for many of these activities. Careful consideration needs to be given to align TA inputs with available local expertise. More details of where TA will probably be needed are provided in Table 7.1.

1 Tasks and activities

1 Establishing a Working Group -

The process of curriculum reform is of national importance and will need the coordination, guidance and supervision of a broad-based Working Group established by MoES. It will have a wide ranging and relatively large membership, including personnel from MoES, parastatal organizations such as NCDC, UNEB and ESA, as well as representations from NTCs and Universities, labor market organizations, religious bodies, (head) teachers, and teachers.

The tasks of the Working Group could include:

- to provide leadership and guidance to the curriculum development process
- to appoint, coordinate, and take part in Working Group sub-Committees to development the curriculum framework, and learning areas.

2 Study Tours

A Study Tour for all Working Group members could be planned. This would allow the leadership and technical working group specialists to update themselves of what happens elsewhere in the reform of SE curriculum and consult on similar reforms in other countries. Such a study tour could for example visit South Africa. Another study tour could visit selected countries in Asia (for example South Korea, Singapore, Vietnam, or Thailand). Another could be planned to selected European countries that could provide relevant best practices for Uganda (for example Scotland, England, the Netherlands and France). It should be kept in mind that an effective study tour would last a maximum of 2 weeks (many senior managers and specialists can not be away for longer periods) and should make in-depth visits to a maximum of 2 countries. Otherwise it will be difficult or near impossible to capitalize on the best practices of specific countries.

3 Institutional review and development

NCDC, UNEB and ESA are core institutions and form the axis of the curriculum reform process: curriculum development, assessing learning outcomes and monitoring and evaluation of progress of

implementation. The capacity of these institutions to play their pivotal roles in the reform the curriculum needs to be reviewed and addressed. Input of Technical Assistance for the review is desirable. The input of selected individual consultants in a longer-term program of Curasse reform can probably not be used effectively. It would be more effective if longer-term institutional technical assistance programs could be established. In this case it would also be possible to mobilize resources and support from specific donor countries and / or donor agencies. The way technical assistance is planned, defines, contracted, and implemented requires a careful and methodological approach. It would be efficient if an international consultant can be mobilized (as is done for example with the preparation of this Curasse Roadmap reform report) to prepare such a program with the Uganda MOES and national education institutions.

4 Staff development for the core institutions and individuals

For an effective curriculum development process it is necessary to review the capacity building needs of individual staff within the core institutions, both of staff of universities and NTCs who are closely involved with the reform process, e.g. as members of the Working Group and their sub-committees. Training for staff should be organized for a mix of young and experienced staff and will also target promising individuals where appropriate, such as members of panels of key subjects. Training should take the form of tailor-made training courses (of 2-6 weeks duration), both in-country and abroad. Input of Technical Assistance for 2-weeks periods over a period of a year will greatly benefit progress of the in-country training activities.

5 Training for textbook development

This will include training for authors of textbook and teaching and learning materials, as well as for technicians for lay-out and graphic artists. This type of training is typically carried out in-country and on-the-job and under the guidance of expert over a period of time. Commercial publishers should be involved with this type of training and it is expected that they will provide a substantial part of the funds for it.

6 Professional development of staff of Teacher Education programs

In view of the change in the SE curriculum, there is a need to review the Teacher Education curriculum at the NTCs and universities. Via short training courses teaching staff will be updated on the changed SE curriculum, its changed content as well as its new methodology. TA input (two 2-week periods over a period of a year) along with use of available local expertise will greatly facilitate this activity. Such inputs should be aligned with development activities to reform the TE curriculum.

7. Staff development for in-service education

Staff development is required for the design and execution of in-service training programs for many of the staff of the TE institutions as well as for experienced and motivated teachers. Such a staff training program should be organized in and by NTC and Universities.

8 Develop an mechanisms for in-service training

Such a structure does not currently exist but is essential for training of teachers implementing the new curriculum. This should be done with the teacher education institutions in a central role. In particular, the NTCs are well placed to take up this role.

9 Re-training of teachers

The staff development activities at NTCs and universities outlined in the previous paragraph should also cater for developing and execution of programs to retrain teachers currently covering subjects that have an over-supply of teachers, to subjects in which the demand for teachers is high, such as science

subjects and Mathematics. The programs should combine a distance education strategy with residential periods during school holidays. Such programs are usually of 12-24 months duration, depending on the needs of individual teachers.

TA inputs should cover the combined issues in 6, 7 and 8 above (two 2-weeks periods over a period of a year) and should align staff training and development the programs.

10 Strengthening school management

To increase efficiency at the school level it is important to strengthen school management to include implementation of effective staff support and appraisal schemes. A workshop of stakeholders brought up the idea of professional body for teachers. Such a body (with all teachers as compulsory members) could provide professional develop opportunities for teachers, as is happening in OECD countries. Teacher appraisal should be against well-developed Teacher Standards. ESA is well placed to provide such standards for school management to follow up. TA inputs (two 2-weeks periods over a period of a year) should assist ESA with the development of evaluation instruments.

11 Strengthening EMIS

The SE curriculum development process needs detailed information about what is happening in schools in order to evaluate the progress of implementation and to see if the process is on track. It is not clear whether the existing system is adequate for providing the necessary information rapidly during the expansion period

12 Strengthening the capacity of the examination board

The move from an elite to a mass secondary system will involve wholesale changes in examination techniques and management (see section 6). Considerable staff development will be required either by visiting TA or by overseas training. It is anticipated that this will be required both at the management and technical (IT) level as well as at subject level.

2 Summary tables showing the technical level priorities

The following table classifies the technical level priorities into short and medium term activities. They also show the anticipated output or outcome of each activity.

1. Establishing a Working Group and an advisory committee for SE Curasse Reform to manage the process		
Process (What and how)	*Time schedule*	*Products (Outcomes)*
Establish Working Group • Representatives from MoES SE Dept, Planning, Teacher Education, NCDC, UNEB, ESA, NTCs and Universities, Teachers, Teachers Unions, Head Teacher Association, EFAG • Coopted technical staff in ad-hoc sub-committees • Chair by SE Department, NCDC acts as Secretariat *Technical Assistance (TA): two 2 weeks period to assist with the development of*	*Immediate short-term*	Well-established Working Group to: • provide leadership and guidance to the curriculum development process • to appoint, coordinate, and take part in Working Group ad-hoc sub-committees to development the curriculum framework, and learning areas.

the Curriculum Framework		
Establish a Consultative committee broadly representative of commerce, industry and civil society	*Immediate short-term*	Established consultative committee
Process (What and how)	*Time schedule*	*Products (Outcomes)*
Institutional review and needs analysis NCDC / UNEB / ESA, Universities and NTC *TA for review (2 weeks)*	*Short-term*	Institutional development plans, NCDC / UNEB / ESA /NTC and Universities
Study tours (e.g. South Africa, Scotland), Staff capacity building (mix of experienced / young (new) staff • include affiliated staff (e.g. subject panels) • include research capacity at ESA and Universities • School management / head-teachers training • tailor-made group studies (short courses, 2-6 weeks) *TA (for 2 week periods during the period of training and development)*	*Short & medium term*	Well-prepared core group of curriculum developers, exam staff, inspectorate and researchers (able to provide leadership to large groups.
• Training for materials development • textbooks • teaching and learning materials • lay-out and graphic artists *In-country tailor-made training*	*Short & medium term*	Well-prepared group of textbooks developers (authors, editors, designers and artists)
Review of Teacher Education curriculum in view of new SE curriculum (medium-term) in NTCs and TE at Universities • Staff capacity building (medium-term) • teaching staff • In-house training courses *TA (two 2-week periods during the period of training and revision of the new TE curriculum)*	*Medium term* *Medium term*	Revised TE programs NTC / Universities Staff capable of teaching the new curriculum
Staff development for provision of in-service teacher education (medium-term), NTC, Universities In-house tailor-made training. *TA input for this activity combined with the development of in-service structure. See 3.ST1 below.*	*Medium term*	Well-prepared staff for coordinating and execution in-service teacher education for SE as well as for schemes to re-train teachers to teach high-demand subjects (such as science).

Process (What and how)	*Time schedule*	*Products (Outcomes)*
Develop a structure for in-service training targeting: • teachers implementing revised curriculum • teachers of less in demand subjects to teach high-demand subjects such as science and maths *(re-training)* • this type of structure should be based at Teacher Education Institutes (at NTCs, possibly universities)	*Medium-term*	Well-established structure for the delivery of effective in-service education activities via a program of regional and school-based workshops and meetings. The system is connected to the pre-service activities of the TE institutions and should benefit from the school practice structures already in place
Strengthening EMIS in support of monitoring and evaluation of the implementation process	*Medium-term*	Well-established EMIS structure that provide the necessary information to ESA and curriculum developers about the curriculum reforms implemented

Legend: WG: Working Group ; ID : Institutional Development; SD: Staff Development; TE: Teacher Education; ST: Structures

6 Addressing the Challenges: Developing the new secondary curriculum

1 The curriculum framework

There are well-established examples internationally of good curriculum documents. All have a broadly similar structure. They all have an over-arching curriculum framework which provides an encompassing view of the curriculum. This includes not only the main learning areas, but also assessment objectives; system data such as teaching hours per year and per subject per year; a description of key expected core outcomes (graduate profiles); core principles of teaching and learning, both at the general and subject level; mechanisms for accommodating learners of varying ability, etc. It must be flexible; capable of being adapted to the needs of a variety of different schools and learner communities. It is underpinned by the core values of the society it serves. In short, it includes all the details that teachers will need to teach the curriculum and that examiners will need to examine it, and that parents and others will need to understand it. The concept of the curriculum framework is elaborated further in Annex C.

The curriculum framework should be developed through a broad consultative process typically taking several months. Its construction will require decisions on key issues (on, for example, the secondary education structure), that can only be taken at a high level. If the framework is fully and effectively developed, the process of filling in the detailed subject statements can follow in a relatively straightforward manner.

2 Addressing curriculum overload

The overarching curriculum framework is powerful tool for limiting the size of the curriculum both overall and for individual learners. All curriculum statements have to be justified in terms of the overall goals and objectives. The framework puts limits on the curriculum time available to each subject area and this in turn limits the number of core standards that can be put in. Optional additional standards can be put in for faster learners. This means that the curriculum load can be tailored to the capacity of the learner to carry it. The framework is an overall view of the curriculum which ensures that overlap between subjects does not occur and also that cross-cutting elements such as health and environmental education are accommodated systematically.

3 The curriculum statements

The curriculum statements determine the detail of what is taught in each subject and how, and give guidance on assessment at both the school and national level. There are many ways in which these can be expressed and these vary very considerably from country to country. They can take the form of expectations of what successful students should know and the competencies that they should have gained. They might be expressed as outcomes which describe what the student should be able to do with the knowledge and competencies gained. They might be expressed in terms of what the learners should be taught, or in terms of what students should be learning when they are taught, or in terms of the learning experiences that learners should be offered. They might be expressed in the form of attainment targets that indicate different levels of achievement within each topic by the end of each year or phase. They may be expressed in the form of ‘key’ (or ‘core’) statements compulsory for all and ‘non-key’ statements that are optional, usually for faster learners. They might be written in the form of assessment statements or standards that express how the learning outcome will be assessed. Most of these are not mutually exclusive and many curricula are expressed in terms of several.

The existing Ugandan curriculum statements take the form of as a list of topics to be examined. This has a number of significant limitations. Firstly many teachers are not clear what the student is

expected to do as a result of the learning, or what competencies he or she is expected to develop, or the depth to which each topic should be studied. Over the past decade many of the teaching concepts have been modernized under pressure of the new knowledge economy demands and the rapidly changing information and communications technologies. Teacher training has simply not kept pace with new and innovative developments and changing demand-patterns. Consequently the teacher turns for guidance to the examination papers. Teaching then becomes directed towards achieving a high examination mark rather than mastering useful competencies. Secondly, the examiners are not able to depart significantly from the routine systems built up over the years that the teachers understand (and that is reflected in the textbooks) and so the system tends to become fossilized. Change, as is evidenced by the current exercise, then becomes very difficult.

Curriculum frameworks and statements on the Web. An example from each continent.

Singapore
http://www.moe.gov.sg/corporate/eduoverview/Sec_course.htm

South Africa
http://www.thutong.org.za/

England
http://www.nc.uk.net

Ontario
http://www.edu.gov.on.ca/eng/curriculum/secondary/grades.html

Western Australia -
http://www.curriculum.wa.edu.au/pages/framework/framework00.htm

There are many examples of the different ways curricula are constructed and the different kinds of subject statements on the Worldwide Web.

It is evident that curriculum construction is a complex issue. Each country constructs the kind of curriculum that best suits its own needs. Working out the details is a process that takes much discussion and a considerable time. Similar details will have to be resolved when the assessment system is developed. What is important is that all these details (including precise meanings of the key words used in the curriculum documents) should be worked out at the beginning of the process so that the development can proceed in a consistent manner across all subject areas. This is not a small task.

4 Programs of study

The list of subject statements can be used as a basis for developing a program through which the subject is studied during the year or educational phase. Examples of such programs are commonly developed by ministries of education, not to be followed slavishly, but as a guide to teachers to illustrate the expected depth of learning and to provide examples of a variety of teaching and learning activities.

Different programs can be developed from the same statements. Thus a list of science statements for, say, S1, could be elaborated into a single science program or into three separate programs, physics, chemistry or biology. In this way, a single list of statements can be used to support a variety of different programs.

5 Examination syllabuses

Subject statements are used, together with the overall subject assessment objectives[2] as the basis of the examination syllabuses or assessment schemes. The statements can be used as a basis of a variety of different kinds of examination. For example, in science, the same statements might be used to develop three examinations (in physics, chemistry and biology) or to develop a single science exam. It is usual, however, to indicate a subset of core statements that will apply to all awards and additional ones

[2] For example, three simple assessment objectives in a science subject may be to assess (a) understanding, (b) the ability to apply the understanding to new situation, and (c) mastery of science skills.

that will apply to the separate science awards. This permits the development of a variety of different examined programs based on the same set of curriculum statements. This is particularly useful for setting examinations that serve a wide range of ability where basic papers can be set on a core set of statements and higher level papers can be set using more difficult questions based on an extended set.

6 Scope and sequence tables

Scope and sequence show, at a glance, how the concepts in a subject area are developed over the years or grades. Developing scope and sequence tables for the key subject areas *from P1* will make possible a seamless dovetailing of the primary and secondary phases. The tables can show clearly the spiral nature of the curriculum and also show how evenly it is growing in both breadth and depth over the years. Interesting research related to TIMSS studies in the USA suggests that great care should be taken not to introduce a wide variety of concepts too soon; scope and sequence tables can serve to keep track of this.

7 Compulsory and optional subjects

In general, the greater the proportion of subjects that are compulsory and taught to all, the lower the cost of the curriculum and the simpler the system is to administer. In most countries the curriculum followed at the junior secondary level has very limited choice, (often just limited to home language). The number of subjects is often limited to just one per subject area (mathematics, main language, humanities, science, arts, a prevocational subject(s) and a subject that is best described as personal and social education and includes elements of civics, life skills, religious and moral education, etc). This curriculum simplifies both teaching and examining and typically leads to a junior secondary leaving examination after the ninth or tenth year of study. The box shows the junior secondary subject offerings in Botswana.

Botswana junior secondary subject choice

Students can opt for two subjects, one practical and one general. Occasionally they can opt for a third which must be in a different column from the other two. All students also take Guidance and Counseling. The weightings are 80% core to 20% options.

Core Subjects	**Optional Subjects**			
	Practical Studies		**General Studies**	
	A	B	A	B
English	Business Studies	Home Economics	Art	Religious Education
Setswana			Music	Third Language
Mathematics			Physical Education	
Integrated Science				
Social Studies				
Agriculture				
Moral Education				
Design and Technology.				

Note that at the junior secondary level in Botswana, science is regarded as a single subject both for the purposes of the curriculum documents and also for teaching (and for the textbooks). It is increasingly normal worldwide for science to be described as a single subject area in curriculum documents, particularly at lower secondary level. This has arisen for many reasons, firstly because the traditional divisions are increasingly blurred in the real world of science, secondly because of the essential philosophical and epistemological unity of the subject and thirdly because of the many increasingly important subject areas–such as earth sciences–that do not fall easily within any of the traditional realms of physics, chemistry and biology (many countries now identify four realms in their science curricula, the fourth being 'earth and beyond') This fact that science is described in a single set of statements in the curriculum documents does not automatically imply, however, that it should necessarily be taught as single subject in a school. How science is taught on the school timetable is a matter that can be left to schools although it is usually considerably less costly in terms of teacher deployment and textbooks for the sciences to be integrated, particularly in small junior secondary schools. This is a significant issue for Uganda to consider.

Only after this basic education sequence is it usual for students be offered significant choices. In most countries the main language, mathematics and science are compulsory. This leaves room for some choice but the overall load seldom exceeds 10 subjects and is normally many fewer. A particular problem with the current Ugandan curriculum seems to be a reluctance to accept that a student does not have to take a multiplicity of subjects to enjoy a rounded and effective education in S3 and S4. One way of rapidly addressing the current overloaded curriculum in S3 and S4 would be to reduce greatly the number of compulsory subjects. A useful model could be that prevalent in South Africa and Namibia whereby the student can choose between a small number of subject combinations leading down different academic pathways (much the same way A-level is organized in Uganda). Within this model, English and home language would be taken by all, three subjects would be compulsory to the group and a sixth is a free choice (as long as several are offered, which in small schools is often not the case). This mechanism effectively limits major cost drivers like small classes and under-utilized teachers.

8 Building cost-efficiency into the curriculum subjects

The Ugandan secondary curriculum is very expensive. In part this is due to the inclusion of a number of expensive vocational subjects. In part it is due simply to the cost of teaching and examining the large number (10+) of subjects taught (in England the norm is 8 subjects at the equivalent of O-level rising to 10 or so for very gifted learners; in Namibia at this level the norm is 6) and also to the large choice offered. And in part, it is due to the fact that subjects such as science, taught as intended in the Ugandan curriculum, are high-cost subjects. Modern science teaching and curricula worldwide are considerably less equipment-dependent (for pedagogical reasons rather than reasons of economy) and savings could be achieved without compromising quality

9 Vocational subjects in the SE curriculum

Vocational subjects are major cost drivers in the existing secondary system. They are expensive to teach and typically are taught to smaller groups than the academic subjects. They produce however, it is reported by the schools, graduates who are more employable than those emerging from the academic track. Any expansion of these vocational classes under USE will be unsustainably costly. This is a strong argument for concentrating vocational training in post-school institutions where is can be done more cost-effectively. It is also a strong argument for ending USE after S2 rather than S4 to allow earlier movement to vocational training.

Many countries expanding their secondary intake are seeking to include prevocational programs at S1 and S2 level. Students then move to vocational institutions after the leaving examination at the end of

S2. These programs aim, in principle, to equip students with the kind of generic skills that will be useful across a broad range of vocational activities. Examples of generic skills that can be of benefit in future vocational programs are communication skills, including drawing; keyboard skills; word processing; accounting; problem solving; etc, The concept of prevocational education is, however, not yet well developed on the African continent and tends to take the form simply of some of the traditional options that happen to be relatively cheap to teach and for which a teacher is available. An emerging prevocational subject that is not high cost is Entrepreneurship but it appears, in most instances (including, it would seem, Uganda), to be a repackaged business studies program largely lacking the essential practical components that it requires to be effective.

The prevocational element of the expanded junior secondary curriculum is an area that demands some novel curriculum development work. It lends itself to a modular treatment where modules can be built around specific local and national needs. The stumbling block, over which most attempts to develop prevocational programs on the continent have fallen, is that of cost.

10 Assessing a broad ability range

The existing examination system addresses a narrow ability range and is characterized by high failure rates, particularly in the sciences and mathematics. The questions papers appear, on examination, to be norm-referenced rather than criterion-referenced. The questions, in the (science and mathematics) papers are somewhat ritualistic in nature, following a set pattern in the way they covered a topic. The textbooks used (science textbooks used date form as far back as the 1940s) are also attuned to the ritual which means that it is possible to obtain high marks by mastering the ritual rather than understanding the subject. All this means that it is not clear what the concept of pass and fail means in terms of real mastery of the subject. The examinations serve not to reward achievement but to operate as a crude filtering device to remove all but those who can master the art of passing examinations from the ladder to the next level of education. This is generally regarded as a very crude method of selection resulting not uncommonly in high failure and dropout rates at the higher level.

A broader ability range can be assessed in two ways, either through an examination system that is capable of discriminating over the range, or by several sets of examinations each addressed to a different part of the range. Examples of the latter can be found in many eastern countries such as Singapore (see above) and in the Netherlands and France. The former system is operated in the USA, England, Scotland and, more recently has been adopted in Namibia, Botswana and South Africa.

Science subjects offered in the Botswana General Certificate of Education examination (year 12)

Award	Single award science	Double award science	Three separate science awards, physics, chemistry and biology
Purpose	Science in general education. Students will not study sciences further	Science for those seeking careers in science and technology related fields	Science for those who propose to study the subjects at a higher level
Nature of the subject	Strong focus on 'useful' science. STS studies. Applications such as health, nutrition, environment, etc	Science for technologists. Focus on the applications of science and on key relevant theoretical aspects.	Academic science
Subject coverage	Involves elements of all the traditional subject areas and some of the emerging ones	Physics, chemistry and biology taught in an integrated form	Traditional distinction between physics, chemistry and biology
Approximate curriculum time	10%	16%	25%

A related issue that is emerging in many countries is how to better attune the assessment system to the needs of the individual student, particularly, as is increasingly the case, where these differing needs cannot be addressed through a range of different curriculum options. Science and mathematics provide examples of this. Both subjects are increasingly becoming compulsory to S4 level but the needs of students at this level in these subjects vary greatly. Some students need the sciences as a foundation for further academic scientific studies while at the other end of the spectrum, there will be students who need science as part of a rounded general education. The latter require a science program that has a broad Science, Technology and Society (STS) focus that is far removed from the needs of the former. There is a need therefore in subjects such as these to cater for a variation in kind as well as variation in ability. The box shows how this issue is addressed at S4 level in Botswana where science is compulsory. It is possible to base all these three awards on the same set of science standards; each award using a set of standards that is a largely a subset of those used by the award to its right in the table.

Assessment systems that address all abilities aim to award achievement, however limited. They typically have a broader selection of assessment objectives with a strong emphasis on the application of knowledge as well as on understanding, an objective largely absent from the Ugandan papers studied. They will employ mechanisms for assessing a variety of skills not currently assessed, either through novel paper and pencil exercises or through a repertoire of continuous assessment instruments.

The notion of pass and fail disappears in an assessment scheme addressing a broad ability range. Almost all students taking an examination are awarded grades (perhaps a small number are 'ungraded'; usually around 5% or less). Examination papers are criterion-referenced and designed to achieve a wide spread of marks (high standard deviation) giving widely spaced, and (largely) pre-

determined, grade boundaries. The full range of the raw marks is used to award grades. The International General Certificate of Secondary Education[3] (IGCSE) awards 8 grades in a subject, A to G. Students getting C and above are usually deemed capable of studying the subject to a higher level. The C/D or D/E borderline may be considered roughly equivalent to the pass/fail borderline in the Uganda O-level. Those that currently fail a subject in Uganda, would, in such a system, be normally awarded grades from E to G. While students getting these low grades would not normally proceed to a higher level of academic education, such grades (which may have their origin in poor teaching as much as in low ability) have currency for entry into vocational and trades programs and the job market.

11 Summary tables showing the curriculum level priorities

The following table classifies the curriculum development level priorities into short and medium term activities. They also show the anticipated output or outcome of each activity.

1. Formulate the curriculum framework		
Process (What and how)	*Time schedule*	*Products (Outcomes)*
Develop the criteria that govern the structure and design of the framework These include issues such as international benchmarking, achievement expectations, cost, gender, graduate profiles, core disciplines, compulsory/optional, etc, and systemic issues (hours on task, subject time allocations, etc)	*Immediate short-term*	Criteria governing the construction of the curriculum framework
Carry out a labor market survey - to develop graduate profiles		Graduate profiles
Consultation process with stakeholders to agree on the framework.		Agreement on framework components
Develop the curriculum framework		Curriculum framework
Process (What and how)	*Time schedule*	*Products (Outcomes)*
Develop the principles that govern the structure and design of curricula in each subject area (key competencies, addressing different learner needs, learner expectations, assessment objectives, etc)	*Short-term*	Principles governing the curriculum structure for each subject area
Develop scope and sequence tables for subject areas (from P1 to S4/S6)		Scope and sequence table for each subject area
Identify opportunities for cross-curricular links and mechanisms for embedding cross-cutting curricular elements such as environmental issues, HIV, etc		Cross curricular links Curriculum for cross-cutting elements embedded in carrier subjects
	Short &	Set of curriculum statements for each subject

[3] IGCSE, an international S4-level award offered by the British company Cambridge International Education and which is very similar to the English GCSE

Design the new curriculum statements in each subject.	*medium term*	area
Develop examples of teaching programs for each subject area from the curriculum descriptions and guidelines. Develop teacher and learner materials (per subject and cross-curricular areas)	*medium term*	Teaching programs developed Teacher guides and related learning materials
Develop, within each subject area, the principles that govern the assessment framework, in particular those that address the assessment needs of all abilities Develop the assessment frameworks at each assessment level Determine, within each subject area, the assessment mechanisms appropriate to all curriculum statements, levels, and to all student needs. Develop and test a question bank for each subject Develop subject examination syllabuses, sample test items and assessment tools.	*medium term* *medium term* *medium term* *medium term* *medium term*	Principles that govern the assessment framework Assessment frameworks and mechanisms at each assessment level. Question bank for each subject and level Examination syllabuses and sample tests

7 Secondary curriculum reform time line

1 Immediate, short-term and longer term actions

The measures to address the challenges outlined in the previous sections of the report have been presented at three levels: 1) at the political level (suggesting policy priorities), 2) at the level of institutions involved in the curriculum reform process (reviewing and addressing institutional and staff development needs), and 3) at the level where the actual processes of the curriculum development take place.

The suggestions made in the report for each of these three levels have also been categorized in three time blocks: 1) immediate short-term, 1-12 months, 2) short-term (1-2 years), and 3) medium term (3-5 years).

The issues in the first time block, *immediate short term (1-12 months)* relate to the initial steps to be taken to get the process of SE curriculum reform on the way, such as setting up a Steering Committee to provide political guidance to the process, setting a Working Group to oversea the technical aspects, and start work on the curriculum framework. In the immediate short-term, reviews of institutional and capacity needs will be carried out. Similarly, a labor market survey will be carried out, the result of which will be an important basis for the curriculum development process.

The *short-term (1-2 years)* time block will focus primarily on building capacity in the system for effective curriculum reform. It will also start with the technical aspects of curriculum development once the curriculum framework has been finalized.

During the *medium term (3-5 years)* the process will start to have a more implementation oriented focus. Decisions on textbook and resource allocation policies need to taken. Revision of TE education programs and development of in-service education structures and programs, as well as training of staff active in these programs will all take place in this time block. Teaching programs and teaching and learning materials and examination syllabuses will be developed, as well as test items and assessment tools.

2 Timeline summary table

The time line in table 7.1 below provides in more details the different activities proposed for the three time blocks.

	Activities		Time period			
Objective	**Ref**	**Details**	**Immediate (1-12 months)**	**Year 1 -2**	**Year 3 and beyond**	**Significant cost elements**
1 Establish curriculum reform structures and mechanisms	1.1	Establish steering committee	x			Operational costs
	1,3	Establish working group with working sub-groups as required. Develop ToRs	x			Operational costs
	1.3	Establish consultative committee	x			Operational costs
	1.4	Establish a physical hub for the reform process and identify a director				Office and internet costs
2 Define the reform strategy	2.1	Make decisions on any structural reforms to the SE system	x			TA to produce strategy paper with costed options
	2.2	Resource allocation forecast	x			
	2.3	Reform strategy paper (or white paper)	x			
	2.4	Develop criteria for developing the curriculum framework	x			
	2.5	Consultations to agree on framework	x			
	2.6	Plan media campaign	x			
	2.7	Identify and remedy policy gaps (such as policies for addressing equity issues and inclusion in the expanded structure)	x	x		
3 Gather information needed for effective reform	3.1	Labor market survey to define SE graduate profiles	x			Research costs
	3.2	Learning materials provision survey		x		TA
	3.3	Institutional needs analyses - Standards Agency, Curriculum development, teacher support, examinations, schools	x	x		TA
	3.4	Review EMIS for SE	x			
	3.5	Review secondary teacher education programs		x		TA
4 Develop the necessary professional and institutional	4.0	Study tours	x	x		Tour costs
	4.1	Addressing capacity needs by appropriate means	x	x	x	Training costs. Study costs
	4.2	School management training		x	x	Training costs

	4.5	Improve the capacity and structure to provide CPD and support		x	x	TA
	4.6	Develop teacher support materials and train trainers		x	x	Training and materials costs
	4.7	Develop and implement retraining programs for teachers		x	x	TA
	4.8	Develop professional and institutional capacity in examinations		x	x	IT infrastructure and training, TA
5 Develop revised curriculum	5.1	Develop curriculum framework	x	x		TA
	5.2	Develop subject area curriculum design principles	x	x		TA
	5.3	Develop scope and sequence for each subject area		x	x	TA
	5.4	Identify cross-cutting elements and carrier subjects		x	x	
	5.5	Identify opportunities for cross-curricular links and ensure subject developments are harmonized		x	x	
	5.6	Develop subject curriculum statements		x	x	TA
6 Develop teaching and learning materials	6.1	Develop programs of study for each subject area			x	TA
	6.2	Develop teacher and learner materials			x	Development and publishing costs
7 Develop assessment structures and materials	7.1	Develop the principles of assessment in each subjects area		x	x	TA
	7.2	Develop assessment frameworks in each subject area		x	x	TA
	7.3	Develop assessment mechanisms appropriate to each subject statement		x	x	TA
	7.4	Develop and text question banks		x	x	TA
	7.5	Develop examination syllabuses and sample examination papers		x	x	Operational costs
8 Monitor the implementation of the curriculum	8.1	Address capacity inadequacies in standards agency		x		Training costs, IT infrastructure, Transport
	8.2	Develop monitoring instruments, standards and indicators		x	x	TA

		(including baseline studies)				costs

The roadmap for the curriculum reform is far from complete in detail. Further work is required, particularly on issues related to cost. Table 7.1 indicates immediate, short-term and medium term actions, many of which will require technical assistance. The main steps outlined in the table are elaborated below.

The actions proposed under section 1 below must be carried out before the main elements of the process can move forward significantly. They lay the foundations for the process. Actions in section 2 can move forward in parallel and do not necessarily have to wait for the finalization of section 1 before they are initiated.

3 Immediate actions proposed

Discussion and review of this report to enable the provision of feedback for finalization of the Curasse roadmap. A number of key decisions have to be made before much of the detailed planning of the roadmap can commence, one of which is the agreement in principle to embark on the kind of major reform process described.

Establishing a management structure to carry forward the Curasse review. A political level steering committee is proposed to which the technical level working group is answerable. A consultative committee is suggested as a mechanism for ensuring wide stakeholder consultation. Technical sub-committees of the working group will be needed to carry out the detailed work

Initiate debate on key issues at a political level. The key decision is what SE structure should replace the current one. A natural corollary to this debate will be a media campaign to ensure the public is properly informed.

Initiate the development of the curriculum framework. This will require a number of political level decisions but also the production of a strategy paper that develops criteria and various options for addressing these in the framework. Technical assistance will be desirable for this. Examples from other countries, particularly those who have recently gone through the same reform will be required.

Study tour by key members of the working group and steering committee. A visit to other countries to study curriculum issues first hand should be arranged. Scotland and South Africa provide examples that, for different reasons, deserve attention; the former has a clear, well thought-through framework and the latter is an African country that has recently been through the process.

Establish a serviced office and appoint a 'champion' to drive the change. The office must have a good, preferably full-time, internet connection and related hardware. A web-site will be needed. A champion coordinator is needed to drive the process, see Annex E for a job description of such a champion.

3 Short term actions

Conduct capacity and institutional assessments of all the organizations involved in the Curasse change process. Identify and propose remedies for capacity gaps. TA will probably be required for this.

Conduct a labor market survey. It would make sense to link this with the one to be conducted by TVET as it will cover much common ground. Use this to develop graduate profiles for each SE exit level.

Begin developing an implementation and monitoring program. Both these should begin well in advance of when they are needed as the program may require elements (such as teacher standards,

baseline research, a CPD support structure, strengthened EMIS and head teacher training) that may take much time-consuming planning and development.

Identify policy gaps and conduct the necessary research to address them. These gaps will become clearer as the roadmap is further developed. Critical policy areas are those on textbook supply, on inclusion policy for addressing particular learner needs, and on pro-poor policies to ensure equity in all aspects of SE. Technical assistance will probably be needed.

Review the school principal, teacher and administrative staff education programs. The revised curriculum will require a much more dynamic an flexible training and (initial) education program that is less 'front-end loaded' and has a greater emphasis on continuous support while teachers are in schools. The institutional capacity to make this structural change should be assessed and a reform plan proposed. TA will be required.

8 Addressing the immediate problems posed by the implementation of USE.

Expanding a secondary system form one serving a small academic elite to a universal system is a significant undertaking that will necessitate a major overhaul of the curriculum. Experience elsewhere suggests that the time between the initiation of the curriculum change process to the first new secondary leaving examination being offered can be between five and ten years. Uganda does not have this time; the first USE intake wave has already entered the system. This does not imply that the process should not begin but it means that interim measures will probably be necessary to ensure that the USE intake emerges with some kind of marketable qualification and skills. Interim measures will also been needed to keep the costs of USE under control and to help maintain quality as classes get ever larger.

There are a variety of interim measures that are possible. A key characteristic of any that are chosen must be that they will, in any case, be necessary measures as part of the longer term expansion; they should not be introduced only later to be undone. The following list show examples of measures that could be implemented. A key element upon which the success of all the proposals will depend is a major thrust in school management training both to improve efficiency and also facilitate the spread of existing good practice.

1 Establish, as soon as possible, a junior certificate examination (JSE) at the end of S2. This could be initially based on existing good school practice and be confined to a narrow range of core subjects (it could be limited to English, mathematics, a single science paper including all three subjects and a single humanities paper including history, geography and RE). The syllabuses for these subjects can initially be a subset of the existing O-level syllabuses, incorporating those elements that effective teachers currently teach in the early years. The teaching curriculum for these years should not be limited to these few examined subjects.

2 Limit selection into S3 to a manageable level (based on JSE scores), but increase the range of vocational programs available in specialist vocational training institutions. Cost considerations prohibit any expansion of vocational subjects offered in schools. Cost considerations also dictate that the examination of vocational subjects by NEAB should be phased out as soon as this can be taken over by the VQF.

3 Review the financing arrangements for entrants into S3. Providing free access to post-basic (ie, post-S2) education is currently unsustainable and expansion of free services can only be paid for from GDP growth. Pro-poor mechanisms will be required targeting poor students (particularly girls) or schools in poor areas so that the cost of post-basic education and training is matched by ability to pay.

4 Greatly reduce the number of compulsory subjects to be offered at O-level (to perhaps English, mathematics and a science) and limit the choice of options using a subject grouping mechanism similar to that used at A-level. Aim at an overall subject load per student of, perhaps, 8 and certainly not more than 10.

5 Adopt a repertoire of efficiency measures such as developing norms and standards for pupil-classroom ratio and PTR, measures to increase teacher time-on-task, etc. It is very evident that there is much scope for improving the overall efficiency of the system. The desirability of sharpening up the teacher appraisal process emerged strongly at the consultative workshop; addressing this in a comprehensive way is not a short term solution but experience shows that even initiating the process through a widely publicized policy directive will quickly have a beneficial impact. The process would

entail the development by the Standards Agency of a set of teacher standards as a pre-requisite for a more objective appraisal system that could ultimately be linked to promotion, salary bars, conditions of service, professional development, teacher education programs, etc.

6 Develop mechanisms for diagnosing and addressing learning difficulties. The system expansion, particularly if it is allowed to proceed uncontrolled, will generate an increasingly large number of learners with learning difficulties. This is a more intractable problem at secondary level than it is at the primary level and in the longer term, policy measures will be required to address this. Immediate measures could evolve by formalizing existing good practice such as counseling groups and pastoral care systems. A start can be made on this process; head teachers can be given guidance, though a training program, on how to address these issues and establish such systems.

7 Develop mechanisms to cope with problems due to large teaching groups. The reduction in subject numbers offered will free up periods for activities such as homework, periods that can also be used for small group tutorials, assisting learners with difficulties etc, all of which are elements of existing good practice. The aim of this would be to mitigate somewhat the negative impact of the inevitable over-large classes in normal lessons. Building key skills (and applying them) and mastering core curriculum areas should be a major focus of the smaller tutorial groups. Some of this seems already in place in schools as observed in Kampala schools

7 Introduce double shifting in urban schools where the need for places is most pressing.

8 Plan the programs to produce teachers more effectively to meet current demand and anticipated changes. A key element of this is to produce more mathematics and science teachers and limit the intake into teacher education subject areas where there is currently a surplus. Also, produce teachers able to teach two or more subjects, especially relevant in addressing efficiency problems in smaller rural schools.

Annex A

Curriculum Development and Research

The issue of research has come up in the discussions on curriculum development. It basically did because school leaders and MoES department staff felt that it is important to have a clear idea of how the curriculum operates in the class, what its problems are and how students achieve in the examinations at the end of the programs. The published exam results will provide an answer to the latter issue, but how the curriculum operates in the school and class remains largely a black box.

The expressed wish by stakeholders to have research-based evidence that the current curriculum is no longer adequate - and that the new curriculum is practical, relevant and effective – is a valid one. Therefore, research should play an important role of research in the process of curriculum reform.

It is useful to distinguish between different levels when we talk about curriculum. Table A1 below outline the intended curriculum, implemented curriculum and attained curriculum.

Table A1 Intended, implemented and attained curricula

INTENDED	**Ideal**	Vision (rationale or basic philosophy underlying a curriculum)
	Formal/Written	Intentions as specified in curriculum documents and/or materials
IMPLEMENTED	**Perceived**	Curriculum as interpreted by its users (especially teachers)
	Operational	Actual process of teaching and learning (also: curriculum-in-action)
ATTAINED	**Experiential**	Learning experiences as perceived by learners
	Learned	Resulting learning outcomes of learners

Research has often been focused on the attained level, to establish how well students achieved the learning objectives at the end of the programs, through tests, national examinations and so on, in a *summative* way. The results then indicate that the exam results are good, not so good, much lower than expected, and the results can then be linked to how well the learning objectives have been achieved. However, it does not provide any information on how the curriculum implementation process is taking place in the schools and in the classrooms.

Recent research initiatives have therefore also and especially focused on the *implemented* curriculum. It has tried to answer questions about the quality of the curriculum, in particular questions to do with how practical the curriculum is in view of conditions in schools and classrooms, how relevant the curriculum is, and how sustainable, and how teachers are coping with the new curriculum.

The result is a strategy that integrates curriculum development activities with research in support of its development. This type is often called *development research* or design research. Action research can be considered as a minimal form of development research.

Development Research is typically carried out in small-scale settings and is usually qualitative in nature. It describes the process of implementation and provides feedback on how the curriculum implementation is proceeding and what can be improved. Development research is carried out to: *improve* not to *prove*. The ESA and also the universities should be equipped to take on this kind of research.

Annex B

Educational structure options

Opening free secondary education to S4 to all who complete primary schooling cannot be sustained within the existing education resource envelope. Neither is it advisable educationally without considerable modification of the existing structure as the large numbers entering the system will have a considerable impact on quality. The objective of secondary reform should be to open up the system as far as possible to all but to alter the existing educational structure in such a way as to maximize the chances of maintaining, and indeed, improving quality.

To make the expansion affordable and to preserve, and enhance, quality, the universal access expansion should be limited to S2 where a junior secondary education leaving examination should be instituted to replace the formal primary leaving examination as the school leaving examination for the majority. This would bring Uganda in line with most other countries that are developing or in transition. A comparison of the Ugandan system with a selection of other countries is shown in Table B1 below.

The establishment of a new structure ending compulsory education at S2 offers an opportunity to consider a variety of different pathways to reach this level and a number of such pathways are considered in Table B2 below. The advantages and disadvantages of each are considered in Table B3. One consideration would be to lengthen junior secondary education from 2 to 3 years by taking a year off the primary cycle. Adding a year K onto the bottom of the primary cycle is a well-recognized way of improving the effectiveness of primary education and this is one of the options that could be considered.

The future of A-level studies

A-levels are an exclusive English (not even British) phenomenon that were exported to Uganda. They exist now in only a very few countries. In Africa they have long been abandoned in Anglophone west Africa and also in Kenya. They survive in England despite a sequence of government reports all recommending their abolition on educational grounds, because of political conservatism and a misplaced perception in the public mind that they represent a quality 'gold standard'. They have long been circumvented in England as the sole means of access to Universities by alternative routes and qualifications, particularly into the more technical degree programs.

The expansion of the system in Uganda will eventually mean that an increasingly large number of students will emerge from S4 who could benefit from further education, particularly technical education, but for whom A-levels are not an appropriate program of study. At some stage the future of the A-level examination will have to reconsidered. They are very expensive compared with alternatives and their narrow academic nature will add increasingly little value, in terms of the national economy, to O-level studies. Abolishing them in Uganda, as in England, will not be politically easy.

Table B1 below shows two countries, Namibia and South Africa, who have, instead of A-level studies, a higher level of their S4 leaving certificate. This is part of a unified S4-level examination and it specifically targets potential university entrants. This is coupled with a 4 year rather than a 3 year degree program. This is a workable model that is worthy of study as a more cost efficient alternative to A-level.

age at beginning of academic year	UK	US	Singapore	Netherlands	Botswana	South Africa	Namibia	Uganda
4	Reception			Group 1 (K)				
5	Year 1	K	K	Group 2 (K)			K*	
6	Year 2	Grade 1	P1	Group 3	P1	P1	Grade 1	P1
7	Year 3	Grade 2	P2	Group 4	P2	P2	Grade 2	P2
8	Year 4	Grade 3	P3	Group 5	P3	P3	Grade 3	P3
9	Year 5	Grade 4	P4	Group 6	P4	P4	Grade 4	P4
10	Year 6	Grade 5	P5*	Group 7	P5	P5	Grade 5	P5
11	Year 7	Grade 6	P6 PSLE	Group 8	P6	P6	Grade 6	P6
12	Year 8	Grade 7	S1	Middle 1		GET 1	Grade 7	P7 PSLE
13	Year 9	Grade 8	S2	Middle 2	S2	GET 2	Grade 8	S1
14	Year 10	Grade 9	S3	Middle 3	S3 JSE	GET 3 JSE	Grade 9	S2
15	Year 11	Grade 10	S4 Olevel	V/H/B* 4	S4	FET 1	Grade 10	S3
16	Year 12	Grade 11	S5	V/H 5	S5	FET 2	Grade 11	S4 Olevel
17	Year 13	Grade 12	S6 Alevel	V 6	S6 Olevel	FET 3 SCE *	Grade 12	S5
18	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	S6 Alevel
19	Year 2	Year 2	Year 2	Year 2	Year 2	Year 2	Year 2	Year 1
20	Year 3 BSc	Year 3	Year 3 BSc	Year 3 BSc	Year 3	Year 3	Year 3	Year 2
21		Year 4 BSc			Year 4 BSc	Year 4 BSc	Year 4 BSc	Year 3 BSc
22						Year 5 Hons		

Bold line indicates phase transition

Double lines indicate the end of compulsory education

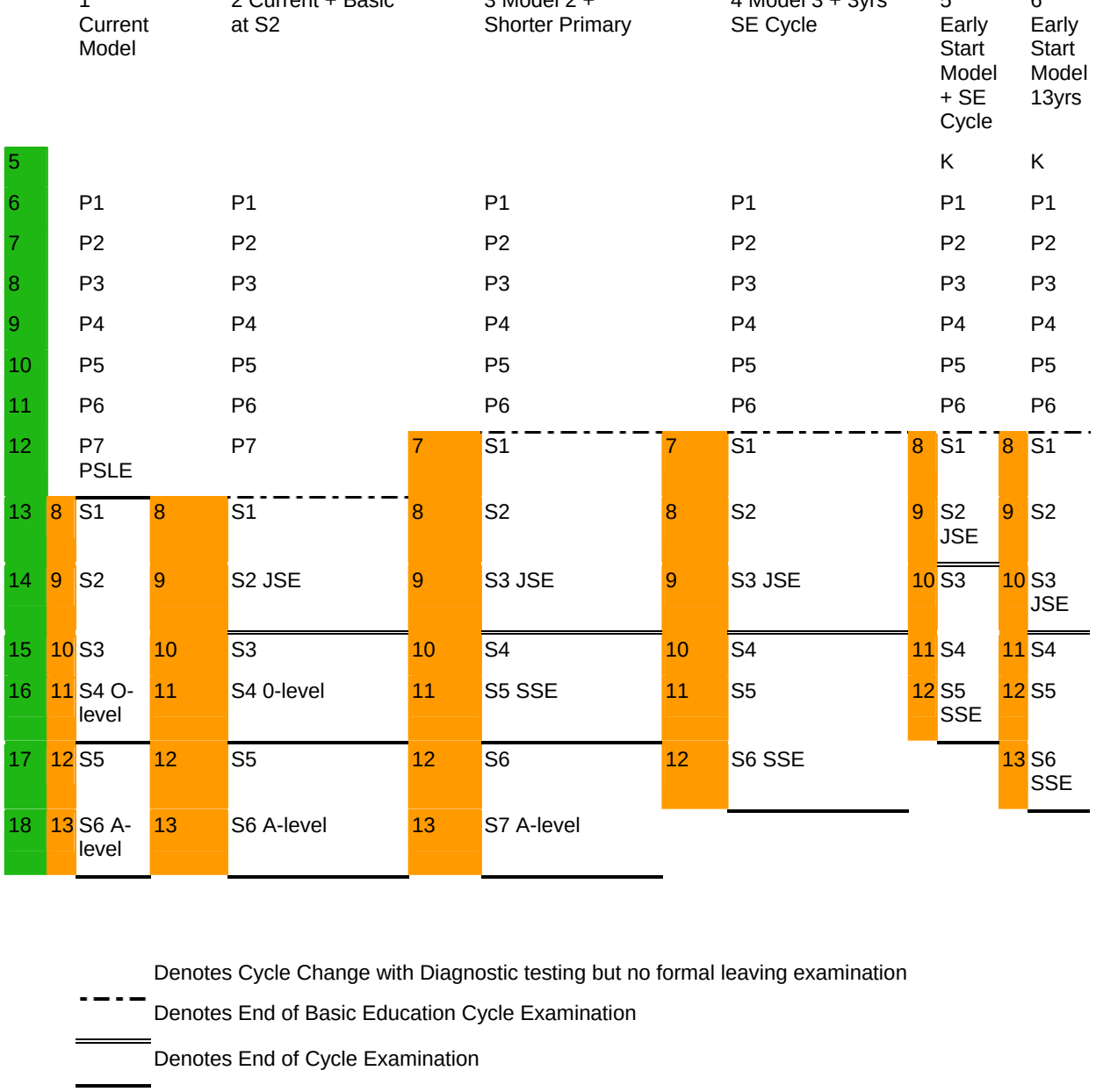
* Selection into three tracks (only academic track shown)

*Selection into three tracks, V= academic H = vocational B = job market

* Two levels, ordinary and higher G/FET = general/further education and training

* From 2009

** Two levels, ordinary and higher


1 Current Model
2 Current + Basic at S2
3 Model 2 + Shorter Primary
4 Model 3 + 3yrs SE Cycle
5 Early Start Model + SE Cycle
6 Early Start Model 13yrs
5 K K
6 P1 P1 P1 P1 P1 P1
7 P2 P2 P2 P2 P2 P2
8 P3 P3 P3 P3 P3 P3
9 P4 P4 P4 P4 P4 P4
10 P5 P5 P5 P5 P5 P5
11 P6 P6 P6 P6 P6 P6
12 P7 PSLE P7 7 S1 7 S1 8 S1 8 S1
13 8 S1 8 S1 8 S2 8 S2 9 S2 JSE 9 S2
14 9 S2 9 S2 JSE 9 S3 JSE 9 S3 JSE 10 S3 10 S3 JSE
15 10 S3 10 S3 10 S4 10 S4 11 S4 11 S4
16 11 S4 O-level 11 S4 0-level 11 S5 SSE 11 S5 12 S5 SSE 12 S5
17 12 S5 12 S5 12 S6 12 S6 SSE 13 S6 SSE
18 13 S6 A-level 13 S6 A-level 13 S7 A-level
Denotes Cycle Change with Diagnostic testing but no formal leaving examination
Denotes End of Basic Education Cycle Examination
Denotes End of Cycle Examination

in table B2.

This table compares each option with its immediate precursor.

1 Current Model	2 Current + Basic at S2	3 Model 2 + Shorter Primary	4 Model 3 + 3yrs SE Cycle	5 Early Start Model + SE Cycle	6 Early Start Model 13yrs
Advantages	*Advantages*	*Advantages*	*Advantages*	*Advantages*	*Advantages*
• Minimal disruption to the current system	• Cost effective expansion mechanisms possible (could be < 2 x unit cost of PE) • Vocational programs are taken out of school and into more effective post-S2 programs in specialised institutions • achievable quickly with minimal change to existing system • Selection into S3 means that S3 and S4 can, in the medium term, remain a largely academic program without many expensive vocational options	• Three year JS subject-based program is more viable than two year one	• Removes the cost inefficient A-level from the secondary program • Postpones narrow specialisation by a year. • The move from 11 to 12 years to SSE will allow a greater proportion of students to achieve a satisfactory grade. • Considerable reduction in cost of examining. • Offers and opportunity to redesign the SS leaving examination system to address the needs of a wider clientele	• Reduced overall cost	• The longer secondary period ensures that a greater number of students successfully complete
Disadvantages	*Disadvantages*	*Disadvantages*	*Disadvantages*	*Disadvantages*	*Disadvantages*
• Cost of adding 4 years of USE to the existing cycle is unsustainably expensive. • Vocational programs in schools for non-academic cadres are of poor quality, under-resourced and costly	• Two years junior secondary is rather short to be an effective program. • O level plus A-level is a very costly SS option	• Introduces a change in length of primary program before the new curriculum has had time to be properly implemented and evaluated.	• Major change may be politically difficult, particularly as A-level seems to be seen as the flagship of the existing system.	• Requires a very effective primary program that prepares students adequately to complete the same secondary program in five rather than six years	• The cost of the additional secondary year

Annex C

The Curriculum Framework and its relationship to other curriculum documents

Curriculum Framework – what is it?

The Curriculum Framework sets out what all students should know, understand, value, be able to do as a result of the programs they undertake in school. It is an overarching document that spells out the learning outcomes students should achieve (for instance in the form of graduate profiles). The outcomes are connected to the stated learning objectives for Education. The outcomes are usually defined at a general level ('overarching outcomes') as well as per separate learning areas defined in the Curriculum Framework. It should also include the necessary information about the system and how the curriculum is to be applied. In short, it should provide all the information needed to allow schools to implement the curriculum effectively.

Curriculum Framework – how is it developed?

The Curriculum Framework is usually developed by a broad-based Working Group of education and curriculum experts, from Ministries of Education, and from Universities, Teacher Education institutions. The Working Group normally also stakeholders, teacher unions, Head-teacher associations as well as individual teachers and head-teachers) as well as societal representations such as parents, religious groups, labor market, NGOs.

The Curriculum Framework is typically developed in an extensive consultative process based on a draft document developed by the Working Group. The consultative process usually takes about a year.

Curriculum Framework – what is in it?

Apart from the learning outcomes, it addresses some or all of the following:

- principles on which the Curriculum Framework is built (e.g. the need to be inclusive (for all students), flexible to accommodate different needs of students, societal, personal and environmental values);
- teaching and learning methodology (how learning should take place, e.g. through active learning or learner-centered approaches);
- which learning areas should be included (e.g. Science, Languages, Health, Maths, etc.) and the linkages between these;
- the resources needed for the learning process, and to achieve the learning outcomes;
- the way learning outcomes will be assessed;
- system details to help schools mount the program such as number of teaching hours per year; proportion of teaching time to be devoted to each subject or subject area; core and optional subjects; etc.

Curriculum Framework – what is it for?

The Curriculum Framework is the guiding document for developing learning programs, subject statements, scope and sequences, teaching schemes, assessment strategies and examination papers. It is used by the technical level (Curriculum Development Centers, Examination Boards, and the Inspectorate) as the guide for the work they do, and by schools to implement the curriculum in the manner intended.

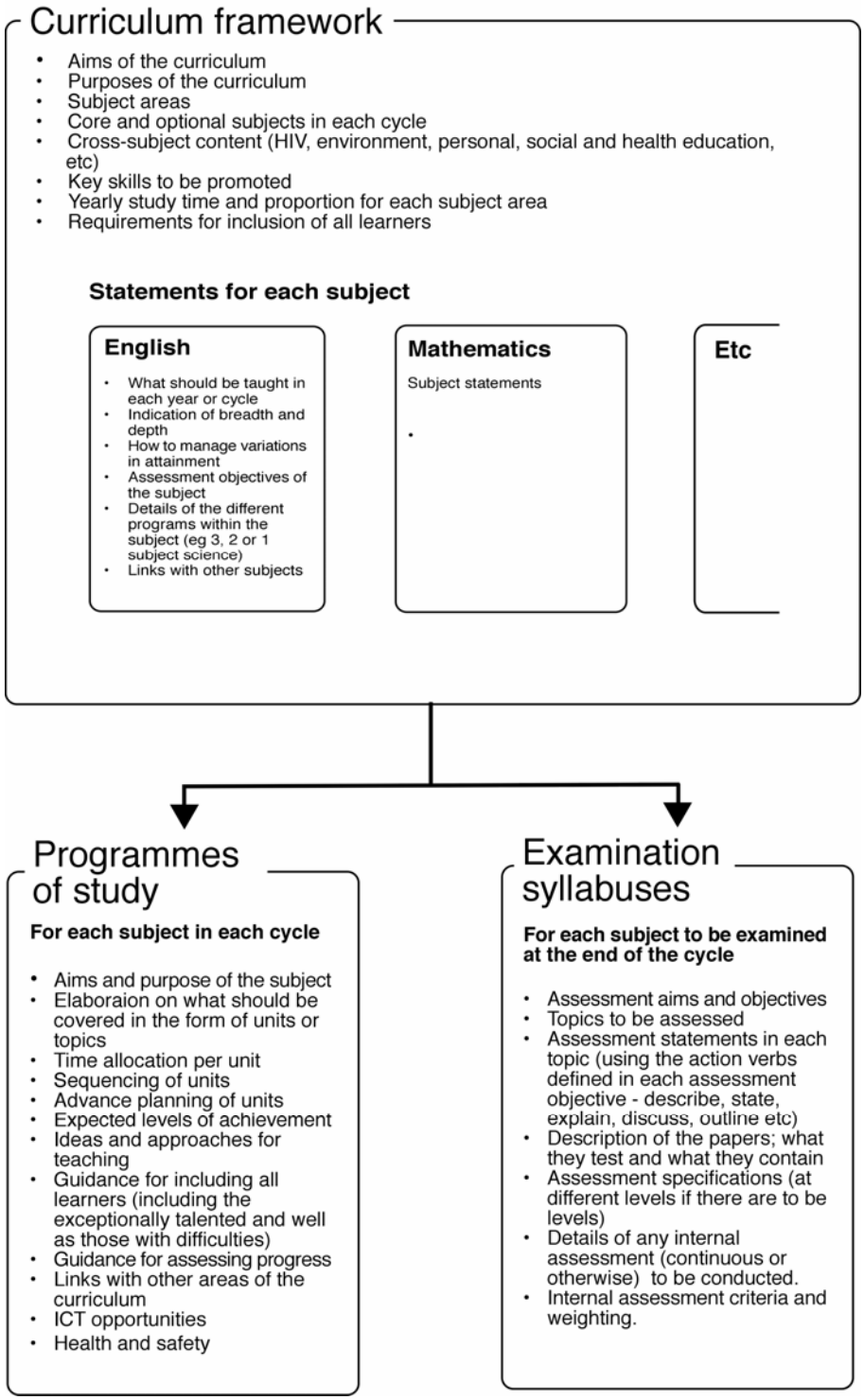
Figure C1 below summarizes the structure of the curriculum framework and shows how it is related to other important curriculum documents that are derived from it.

Examples of a Curriculum Frameworks can be found at:

- http://www.curriculum.wa.edu.au/pages/framework/framework02.htm

- http://www.cde.ca.gov/ci/cr/cf/
- http://www.scotland.gov.uk/Publications/2004/11/20178/45862

Figure C1 - An overview of a curriculum framework



Annex D

Teacher supply and demand

A recent report on teachers and teacher education[4] shows that there are 42,673 secondary school teachers. There has been an increase in the number of teachers of on average 2000 each year, since the year 2000. Teacher attrition in 2006 was 6.1%. The student teacher ratio (STR) is 19, up from 17 in 2000. This is very low by international and African standards; Namibia, for example has a ratio is 30. Thirty-four percent of secondary teachers are graduates and 41% are diploma holders. Female teachers make up 22% of the total number of teachers. There are large geographical differences in the STR, teacher qualifications and gender distribution. Central region has a STR of 11, whereas this goes up to 26 and 37 in some districts in the East and North. The percentage of graduate teachers in Central region is around 60; and about 11 in the North and East of the country. In some districts in Central region the proportion of female teachers in about above 30%, in the North this can be as low as 6-8%. The development of staffing norms and standards incorporating a transition period for all secondary schools to reach an agreed STR target (say 30) within an agreed timeframe (say 5 years) will be a major cost saver.

Problem with supply of science and maths teachers - The current government policy emphasizing science and mathematics in the secondary education curriculum, SE students take mathematics and three science subjects. This will require additional science and mathematics teachers. It is calculated that it means that about one third of enrolment at TE institutions needs to be in the science and math subjects. Yet, this is only 19% (in NTCs) and 20% (at Universities). This will result in an even greater shortage than is presently the case.

There are insufficient school leavers (A-level) in science and math qualifying for entry into TE institutions, in spite of relaxing the entry requirements to two principal passes (was four before). This is caused by the low number of students studying science and math at A-level and the low percentage passes in these subjects. Most of those will enroll in BSc degree programs rather than BEd programs, or at the NTCs.

One way of tackling this problem is to institute pre-entry programs. This is already so in some of the private universities training teachers but the quality of these pre-entry programs is questioned. A focus on developing and executing *quality pre-entry programs* for TE institutions may be a fruitful avenue to tackle the shortage of science and mathematics teachers. *Re-training* of teachers currently in low-demand subjects to teach in science subjects and math is necessary until the time that TE institutions provide enough teachers in these subjects.

Teaching loads - Teachers at secondary schools teach an average of 18-24 periods of 40 minutes. Contact time is thus about 16 hours per week. That compares rather poor with 26 hours in sub-Saharan Africa as a whole, or Western Europe (24.5 hours). There are other issues that impact on the hours teachers work at school. Additional teachers paid for by PTAs are further reducing the teaching loads. On the other hand, the large classes will make marking test and other student work very labor intensive. This is not shown in the teaching loads. Teacher absenteeism is about 20%.

Teacher quality is hampered by the poor quality of student teachers entering TE programs, weak pedagogical training in TE institutions, poor motivation, and lack of professional development[5]. It results in poor planning, under-utilization of instructional time, dominant teachers, use inappropriate methodology, lack of focus on active learning and practical work.

[4] Teachers in Uganda: Overview of issues (Draft report, June, 2007)

[5] Roadmap for curriculum review primary education (March 2007)

The above issues provide impetus for the vicious circle of sub-standard teaching, poor quality of students from Secondary Schools, and poor intake in TE programs, shortage of qualified teachers, and poor teaching. Measures need to be put in place to break this vicious circle. Strengthening TE programs, providing professional development opportunities for teachers (e.g. through Teacher Professional Councils[6]) and strengthening school management to include management (e.g. to address absenteeism of teachers), support and appraisal mechanisms for teachers seem priorities in this respect.

[6] As is the case in OECD countries and South Africa. Membership is often compulsory and a pre-requisite for getting a position

Annex E

Coordinator for Working Group

The Working Group will be made up by representatives of the institutions and organizations that have a stake in the development of the new SE curriculum. These include the core institutions NCDC, UNEB and ESA, but also labor market organizations, NGOs, teachers, head teachers and their unions, and so on. All of them will serve on the Working Group in a part-time capacity. What is needed in addition to this arrangement, is a **full-time coordinator** who will oversea all development activities, training requirements, required inputs, time schedules and so on.

The Coordinator should be:

- an individual with proven experience and expertise in SE education and curriculum
- committed, conscientious, pro-active and, willing to learn
- be a good communicator and pleasant personality
- prepared to work flexible hours to match need
- able to travel out of the capital

Tasks of the Coordinator include:

- be the secretary to the Working Group (WO: in the report we indicate that this should be somebody from NCDC, perhaps the coordinator could be coopted to NCDC
- to coordinate, manage and supervise all activities of the Working Group
- to liaise with staff coopted on to the Working Group
- draw up ToRs for visiting consultants
- to be the counterpart for consultants, both their missions to Uganda and in between missions
- assess and organize required inputs (both human and physical resources)
- evaluate performance of coopted staff
- prepare reports to the Steering Committee
- coordinate the public relations activities of the Working Group

Secretarial support to the Coordinator will be available.

Annex F

Issues raised at the Curasse consultative workshop

The following is a list of issues raised at the consultative workshop held on 24th July 2007

Curriculum

- how are Aims and Objectives of Education addressed in the curriculum?

Curriculum content (subjects)

- curriculum overload
- syllabi overload, difficult to cover within the time
- 'integration is repackaging'
- content overlap between subjects / duplicate subjects (entrepreneurship = economics)
- overload results in excessive homework ('my 7 year old works in the evening on his homework')

Relevance and the market

- curriculum needs to respond to the market demands
- need for a skills-based curriculum

Methodology

- highly theoretical ignoring the practical components
- learner-centred (or active learning) is the preferred methodology

Resources

- textbooks
- T&L materials to support teachers implementing the curriculum

Professional development

- where is it?
- need for professional development to support implementation
- re-training to include life skills for teachers

Curriculum and Examinations

- mismatch between the two (integrated English)
- exams drive the curriculum
- continuous Assessment? What happened to it?
- teaching to the test
- teachers are assessed by the examination results of their students
- need for assessment of skills-based subjects, e.g. by portfolio (music, physical education, arts)

Research and evaluation

- urgently needed
- but by whom (teachers, schools? universities?)

- supporting the need for curriculum reform
- supporting implementation; see whether it is on track
- tracer studies to follow students

One curriculum for everybody?

- curriculum differentiation

Vocational subjects

- attitude from side of the parents and students

Annex G

--------- *to be finalized* ----------

Persons consulted

*denotes stakeholders who participated at the Secondary Education Curriculum Workshop on 25 July 2007

Agencies

Elsa Meinzer	EFAG/GTZ
Fiona Musana*	EFAG/GTZ
Gunter Schroter	EFAG/GTZ
Jessica J. Ihomu*	Irish Embassy

Directorate of Industrial Training (DIT)

Ethel Kyobe	Manager UVQF-S
George Kiwungulo	Superintendent Trade Testing
Mukasa A. Kizito	DIT Temporary Consultant
Mukasa Kiyaya	Commissioner DIT
Sarah Nalumansi	Management Consultant to DIT

Education Standards Agency (ESA)

Alice Obella Amoit

Tuvyagyenda Kedrace

Ministry of Education and Sports

Carthbert Mulyalya*

John M. Agaba*

Patrick Sempala*

R. Nsumba-Lyazi*

Wilber Ainebyona

Y.K. Nsubuga

Joseph Muvawala

G. A. Dhatemwa

John Mbabazi

National Curriculum Development Centre (Kyambogi)

Angela Kyagaba*

Anne Kayongo*

Betty Twesiime*

Frances Amulen*

Francis Kaleeba*

Frederick Ssempala*

Grace Baguma*

Hazzy Sengendo Kamya*

Joseph Kintu*

Josephine Delia*

Margaret Businde*

Mary Tukahirwa*

Mumanyire Myers*

Nathan K. Thembo*

Pross Mulyowa*

Sophia Rose Acen*

Teo Nabukenya*

Secondary Schools

Aisha Lubega*	Nabisunsa Girls School
B.K. Kaziro*	Duhaga Secondary School
Babimpa Gdwin*	Masaba Secondary School
Beatrice Kabwa*	Mt. St. Mary College (Namagunga)
Edward Brobukenya*	St. Mary College (Kisubi)
Emma Lugujjo*	Greenhill Academy
F. Tinkumanya*	Kitebi Secondary School
Frank Manynido*	Kyebambe Girls Secondary School
Hajj Kileezaala Twahil*	Saad Memorial (Kasese)
James Akabwai*	Teso College Alcet
K.H.W. Ssemakula*	Kyamboga School
Lule Herbert*	Muntuyera High School (Kitunga)
P.K. Ndiwalana*	Princess Diana High School
Patrick Bakka Male*	Mengo Secondary School
Rose Izizinga*	Makarere College School
Stephen Kayanja*	Seroma High School
Twaha Ssemakula*	Greenhill Academy

Teacher Education Department

M.A.O. Ocen	Commissioner Teacher Education

Zikanga Kiyyndo Dinansio	Assistant Commissioner Secondary Education
Christopher Ckaddu Buyisi	Principal Education Officer, Secondary Teacher Education

Uganda National Council for Science and Technology

Deborah Kasule*

Uganda National Examination Board

Anyukudo Stephen Otworot*

J. Turyatemba

Joseph Mutebi

Josephone O. Mutonyi

Joyce Awor Ebal

Julius Tenhwa

Kazeera Jackson*

Margaret Namakoye

N. Jalobo Jacan

Sarah Namadiba

Tom Ojok

Universities

C.B. Mugimu*	Makerere University
S Oluka	Makerere university

Annex H

Summary of Results of a short survey of key stakeholders

The following notes are a summary of the results of a survey of key stakeholders on the effectiveness of Uganda's Secondary Curriculum – Assessment – Examination (UG-CURASSE) system. It took place at a workshop organized by the Ministry of Education and Sports (MOES) on 25th of July 2007 in Kampala

Profile of the Respondents

31 Respondents participated in the survey. Out of them 17 were Headteachers in Secondary Schools, 2 were Teachers, 6 were employees of National Curriculum Development Centre (NCDC), 2 were employees of Ministry of Education and Sports (MOES), 2 were employees of Uganda National Examinations Board (UNEB), 1 was an employee of the Uganda National Science and Technology Council (UNSTC) and one was a representative of the Education Funding Agency Group (EFAG).

The profile of the schools of the responding headteachers was the following: 4 schools were reported to be both Day and Boarding schools, 10 schools were Boarding only and 3 schools were day only. Out of these schools 14 were Government aided and 2 were reported as Private. The Headteachers on average have 7.7 years experience in their position (with experience ranging from 0.5 years to 15 years). They have on average 18.6 years of teaching experience (values ranging from 2.5 years to 30 years).

Comments on systems ability to produce competitive graduates

Most respondents agree that the Secondary education graduates are taught in overly theoretical manner (driven by an exam-oriented system and teacher-centered methods of delivery) and have limited practical skills as well as creative and thinking skills. The respondents have stressed the need to emphasize the development of practical and life skills among the Secondary School graduates. Others have observed that graduates' competitiveness is limited to the local environment. In addition, the respondents report that the character building aspects of education, such as citizenship, ethics and responsibility seem to be lacking. Most agree that the system should be producing job-creators, not job-seekers.

The downfalls of the system cited to create the current situation include: too congested and theoretical curriculum with some times little relevance to Uganda, lack of and ill-equipped facilities, too much emphasis put on exams.

SE Curricula

All of the 31 respondents agree that the Secondary Education curricula at both the O and A levels should be revised. The main issues that the curriculum should address were identified as:

- Increasing relevance in teaching and in educational materials (teach what applies to society), including incorporating ICT, life skills in the curriculum
- Increasing practical instruction (give students skills)
- Decreasing the number of subjects (from 42)
- Changing the allocation of time for subjects taught
- Producing new textbooks
- Reviewing assessment methods/evaluation

- Incorporating the market demand research in creating the curriculum
- Providing the syllabi and teachers guidelines for the subjects taught
- Addressing the duplication of content across the subjects and levels
- Addressing the cost-effectiveness of the current system
- Providing in-service teacher training
- Creating curricula which enhances thinking and problem-solving skills, writing and comprehension skills, as well as moral values
- Curriculum should prepare the students for further study or job market (job creation)
- Provide guidelines for methodology
- Deepening the curriculum

Proposed Changes to SE Curriculum to improve transition of graduates to labor market

The proposed changes to the secondary curriculum to improve students' entry to the labor market are:

- Considering the labor market demand
- Emphasizing skill-based subjects, particularly the ones that facilitate self-employment
- Vocationalizing the education
- Teaching subjects that address social and economic problems
- Reducing the dependency on exams for assessment
- Including more ICT and S&T in the curriculum

Gender Bias

The respondents report that girls are sometimes not encouraged to participate in co-curricular activities. The textbooks usually only show boys in the positions of power and skill, with the girls watching on the sidelines. The design of the books in terms of print, illustrations, style, language, is not suited to girls. There is a traditional division between girls learning "female" subjects such as Home Economics, Cookery, etc. and boys learning the "male" subjects such as Woodwork, Metalwork, Bricklaying etc. The old technology in the "male" subjects discourages the girls from participating. There is a notion (among students and parents) that girls are not very good at mathematics and sciences and they should be taught humanities. Some attitudes also indicate that girls can do without much education or excellent performance.

Constraints of Science and Technology Subjects

The constraints in the Science and Technology subjects were predominantly reported as:

- Lack of skilled, properly trained and creative Teachers
- Lack of infrastructure (laboratories)
- Lack of equipment and chemicals, workbooks and other instructional materials
- Poor approach to learning sciences (they are considered too difficult)

10 respondents report that the failure rate for S&T subjects in their schools is 25% or higher (in two cases 50% or more). This is attributed to the lack of properly prepared work plans, lack of well-trained teachers, bad methods of delivery, lack of reading culture among the students, too much theoretical training and not enough practical research, students' attitude towards science, lack of the relevant infrastructure and materials.

Among the respondents who report the rate of failure in S&T in their schools to be 25% or lower, the reasons for the high pass rate are reported to be more funding, investment in facilities, apparatus,

chemicals, provision of counseling and guidance to students, engaging students in practical work, provision of remedial classes, more testing, in-service training for teachers.

ICT

Out of the polled respondents 22 report that they own a computer while 8 report that they don't. 22 have an email address while 4 do not. 15 respondents do use a computer to access teaching and learning materials while 11 of them do not. 9 report that they use a computer to prepare teaching and learning materials while 12 do not. Only 6 respondents has used a computer in the classroom as a learning aid, while 15 report that they have not. 15 respondents have used a computer in administrative tasks while 9 have not.

English Abilities of S1 students

The English skills of the S1 students are reported to be generally poor, with slightly better reading and writing skills than oral communication skills. There is a difference between urban and rural students with the urban students having better skills in speaking, writing and reading in English.

The suggested improvements of the students' English skills include redesigning the curriculum, exposing and encouraging the students to read more; providing more reading materials for students; creating role playing, drama, debate activities and guided discussions; introducing writing competitions and oral exams in English; making Literature in English a compulsory subject.

Textbook Provision

22 respondents answer that the supply of textbooks is inadequate while 3 report that it is adequate. Most say that there is inadequate funding for textbooks - that they are too expensive and many times they are out of stock. Some subjects do not have a textbook at all (e.g. woodwork, metalwork).

In terms of textbook quality, some textbooks are not relevant to the Ugandan situation, some are too shallow and have mistakes and others are too old. The textbooks are often not interesting or challenging to students. A number of departments has to use numerous books to adequately cover the syllabus.

The respondents report that one textbook is shared on average between 4-5 students (but in some cases as many as 20 students).

Teaching load

The teachers teach between 6 and 28 40-minute periods per week (on average 13.5 periods per week). The class size varies between the levels and the subjects with higher number of students in the lower levels S1-4 (50-90 students per class) and relatively smaller numbers in the higher levels S5-6 (20-50 students per class).

In terms of the initial training provided for the Teachers and Headteachers, most report that they have not received training or it was inadequate. Some have had some initial training but mostly have learned on the job. A number has attended courses out of their own initiative. Those who did receive training report that it was often too cursory and was lacking in the areas of management and curriculum implementation.

The majority has undergone some upgrading or professional development programs through in-service workshops, courses at the Uganda Management Institute and the Makarere University and courses organized by the World Bank or the British Council. Some are pursuing Masters programs in Education, Education Management and Administration, Education Planning, etc. Most of these are self-sponsored.

Additional Comments

The respondents have stressed the importance of the curriculum reform and urged follow-up and implementation. It was mentioned that stakeholder consultation is important and there is great need for coordination of the effort.

Annex J

Documents consulted

a) Documents from the Government of Uganda: Ministry of Education and Sports, National Curriculum Development Centre

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