STUDY ON CURRICULUM DEVELOPMENT IN GENERAL EDUCATION IN SRI LANKA

NATIONAL EDUCATION COMMISSION
NAWALA ROAD, NUGEGODA
SRI LANKA

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Study on Curriculum Development in General Education in Sri Lanka

A Research conducted for the National Education Commission

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Prof. S. Widanapathirana (Team Leader)
Dr. Upali Mampitiya
Mrs. R.C. Jayawardena
Dr. K.L. Chandratilleke

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Preface

The National Education Commission (NEC) commenced formulating National Education Policy for its third ten year policy reviewing cycle. As a part of the above policy formulating process NEC has commissioned ten research studies in order to identify the important policy issues in General Education System in Sri Lanka. The research teams were asked to recommend changes to the present policies where necessary and suggest new policies to the National Education Commission based on their findings.

The Standing Committee on General Education (SCGE) of NEC has identified ten different study areas in the General Education System and prepared relevant Terms of Reference (TORs) for these studies after several discussions at SCGE meetings. The research reports published in this study series were prepared over a period of around nine months by ten research teams selected for their expertise in the different aspects of General Education. The draft reports of research studies were reviewed by a panel of reviewers before finalizing the research reports.

The National Education Commission appreciates the support given by the World Bank in allocating funds from the Transforming School Education System as the foundation of a knowledge hub Project (TSEP) at Ministry of Local Government and Provincial Councils. The Commission also thanks Sri Lanka Institute of Development Administration (SLIDA) for their services provided in financial administration of the research studies.

It is hoped that the publication of these studies will contribute to the extension of the knowledge base necessary for educational change and will stimulate interest and participation in improving the quality of education in Sri Lanka. These studies can also provide points of departure for future researches.

Prof Lakshman Jayatilleke
Chairman
National Education Commission

Contents

1. Introduction to General Education

General education in Sri Lanka covers primary and secondary education .The government plays an important role in general education in Sri Lanka. There are approximately 10,400 schools of which 9,410 (90%) are government schools. The balance consists of around 70 private schools, 700 pirivena schools and about 200-250 international schools. The government and pirivena schools offer the national curriculum and their students sit the national public examinations. International schools offer foreign curricula and prepare students for overseas examinations.

The National Education Commission (NEC) has initiated a process of formulating a set of policies on general education in Sri Lanka. As part of this process the NEC has identified 10 major themes of research study that could lead to a policy framework on general education in Sri Lanka.

- Curriculum Development
- Teacher Education
- Quality Assurance
- Education Planning and Management
- Development of Learning Environment
- Investment /Expenditure in Education
- Career Guidance
- Medium of Instruction
- Special and Non-Formal Education

The present assignment comes under the first theme i.e. the study of curriculum development on general education.

1.1 Terms of Reference for the Present Assignment

The objectives of the present assignment on curriculum development in general education as communicated to the research team are as follows.

- To review the curriculum policies presently adopted in general education in Sri Lanka.
- To identify global trends in curriculum development relevant to Sri Lanka.
- To summarize currently available studies on curriculum development in Sri Lanka.
- To provide recommendations and prepare new guidelines to enable the development of a national curriculum policy on general education.

2. Methodology and Related Issues

The approach of the study was qualitative and data was collected from various resources despite limitations of time and logistics. Major data was collected from research studies recently published on reviews of school curriculum development and analysis of such research by expert groups. Recent research studies of the human development unit of the World Bank also provided valuable data. Data relating to international curriculum development in the school systems was obtained from the relevant websites available in the World Wide Web. In addition, visits to several government schools, focus group meetings and interviews with In-Service Advisors, School Principals, Zonal Directors and curriculum development staff at the National Institute of Education (NIE) and the relevant Directors of the Ministry of Education(MoE) provided important information needed for the study.

3. Sri Lanka

Prior to making policy recommendations, the key features of the curricula adopted at present in primary and secondary education in Sri Lanka will be reviewed. This will be followed by an examination research carried out recently by different bodies on curriculum development in Sri Lanka.

The present curriculum policies have evolved through a series of policy reforms in 1972, 1997 and 2003.

3.1 Review of Curriculum Development Policies Adopted in General Education at Present

3.1.1. Status of Primary Education - Major Features

The present primary education system had its origin in the Education Reforms of 1997. It had been carried through subsequent reforms (2003) with minor modifications and improvements. The current school curriculum is competency based. During the school years the child is required to acquire the basic competencies stipulated in the NEC report of 2003. They are:

1. Competencies in communication - literacy, numeracy, graphics, information technology proficiency
2. Competencies relating to the social , biological and physical environment
3. Competencies relating to ethics and religion
4. Competencies relating to use of leisure, enjoyment and recreation
5. Competencies in learning to learn
6. Competencies relating to personality development
7. Competencies relating to preparation for the world of work

Several other features were clearly identified in the new curricula that are distinctly different from those in the existing curriculum. The five year period assigned to primary education consisting three key stages that commenced in 1997 was retained. The learning teaching process is pupil centered and comprises three elements, namely guided play, activities and desk work. At key stage one a greater part of the time is spent on play involving learning through activities and less amount of time for desk work. At the key stage two all three modes receive equal prominence while in key stage three desk works receives greater emphasis. Concepts relating to stabilization of morals, inculcation of values, development of tolerance, appreciation of other social groups and cultures and living in harmony run as unifying threads to the three key stages.

An integrated approach is used in the present curriculum which includes four subjects, Mother Tongue, Religion, Mathematics and Environmental Related Activities.

English is used in Grade 1 as a means of communication (Activity Based Oral English) and Tamil as a language of communication only, while formal teaching of English as a second language and the teaching of second national language (Sinhala/ Tamil) commences at key stage two. In Activity Based Oral English teaching, the emphasis is to use English as a means of communication while children are engaged in guided play activity under the subject Environmental Related Activity.

Throughout the learning- teaching process children are assessed continuously placing emphasis on informal methods of assessments. Towards the end of each key stage children are assessed on their level of mastery of essential competencies. Essential competencies to be achieved at the end of each Key Stage have been identified, documented and made available to the teachers.

Text books are available for all subjects except Environmental Related Activities and have been prepared by specialists in the field in consultation with the Primary Education Department of the NIE. Detail teacher guides have also been prepared for all subjects by the NIE.

Trained In Service Advisors (ISA) have been appointed to divisional education offices throughout the country to conduct in-service training for teachers.

A commendable feature that helped to sustain the Primary Education Reforms of 1997 was the production of separate material such as student work books, text books, teacher handbooks, Essential Learning Competencies for each key stage, Guidelines for Principals and Primary School Heads, in addition to curriculum specifications.

3.1.2. Status of Secondary Education - Major Features

Most of the reforms suggested in 2003 have been included in the junior secondary school curricula in Grades 6 to 9. It follows a common curriculum comprising twelve subjects viz. as Religion, Sinhala/Tamil Language, English, Mathematics, Science, History, Geography, Life Competencies and Citizenship Education, Aesthetic subjects (Music, Art, Dancing, Drama and Theatre), Practical and Technical Skills, Health and Physical Education and Sinhala/Tamil as a second language.

The present curriculum is competency based. The content is designed to give the competency, competency level, content and the number of periods assigned for all the major subjects. Almost all the subjects have the above details included in a document called "the curriculum grid" that gives the gradual development of subject content with respect to previously identified themes across different grades (e.g. Grades 6-9). The Teachers' Instructional Manuals (TIM) giving instructions to teachers about various competencies and levels that specify the scope of the content with learning outcomes under each competency level have been prepared by NIE in all three languages. The lessons on all subjects have been prepared on a model called "E-5" (Engagement, Exploration, Explanation, Elaboration and Evaluation).

The senior Secondary School (Grades 10 &11) curriculum consists of six core subjects namely, First Language, Religion, Mathematics, Science, History, English Language and three optional subjects chosen one each from the following three subject groups.

> **Group I-** Geography, Citizenship Education and Governance, Entrepreneurship Education, Classical and Modern languages (Pali, Sanskrit, French, German, Hindi, Japanese, Arabic), Sinhala/Tamil as a second language.
>
> **Group II-** Music (Eastern/Western/Karnataka), Art, Dancin (Local, Indian), Drama and Theater (Sinhala/Tamil/English), Literature (Sinhala, Tamil, English, Arabic).
>
> **Group III-** Information Technology, Agriculture and Food Technology, Fisheries and Food Technology, Design and Technology, Arts and Crafts, Home Economics, Electronic Writing and Short Hand, Health and Physical Education, Communication and Media Studies.

A circula issued in 2008 by the Ministry of Education states that teaching of certain subjects in the secondary curriculum in the English medium was permitted in 2002 considering the importance of learning English and that the trend to be continued further provided that the students learning the curriculum in the bilingual mode should be in a single class when they are not receiving instructions in the English medium. The English medium students should be separated only when they learn in the English medium. This circular further endorses the importance of bilingual teaching and specifies subjects that could be taught in English for Grades 6-9 as well as to Grades 10 & 11. In the junior secondary grades (Grades 6-9) the following subjects can be taught in the English medium.

1. Mathematics
2. Science
3. Health and Physical Education
4. Music (Western)
5. Geography
6. Life Competencies and Civic Education

A maximum of any five subjects can be selected to be followed in the English medium.

In the senior secondary grades (Grades 10 & 11) the following subjects can be taught in the English medium:

Under core subjects - 1. Mathematics and 2. Science

Under the groups of subjects student can select any three of the following subjects in the English medium

1. Geography
2. Citizenship Education and Governance
3. Entrepreneurship Education
4. Music (Western)
5. Information and Communication Technology
6. Health and Physical Education

(Subsequently, in the same year the Circular 2008/12 (i) included the subject Business and Accounting Studies in the group of subjects that could be followed in the English medium.)

Bilingual teaching is an option given to schools that could find the required resources. This circular makes a special reference to History and states that starting from Grade 6 in 2007 the subject should not be taught in the English medium.

Senior secondary school leading to G.C.E. (A-L) comprises three broad streams, Science, Arts and Commerce up to 2013. The number of subjects that can be offered at the G.C.E. (A-L) currently stands at 33. At present three subjects can be selected from the list of subjects offered in a particular stream. The National Education Commission proposed several reforms in its 2003 policy frame work. However, some of the reforms were not implemented.

Technology subjects were introduced in 2005 as a pilot project in 44 selected schools and the number of schools was gradually increased to approximately a hundred .Technology subjects were categorized under Hard technology(three subjects; Civil technology, Mechanical technology, Electrical, Electronics and Information technology) and Soft technology(Bio resource technology, Food technology and Agricultural technology).

A technology stream has been implemented in selected schools island wide from 2013 onwards in addition to the existing three streams. A student who specializes in technology areas related to biological sciences has to offer two technology subjects, Science for Technology, Bio Systems Technology and another general subject from a group of subjects. A student who wishes to follow engineering subjects in the technology stream has to offer Science for Technology, Engineering Technology and a general subject from a group of subjects.

In addition to the subjects in the selected stream every student has to offer General English and obtain a pass in the Common General Paper for admission to the University. Text books are not produced by the government for G.C.E. (A-L) subjects, but detailed Teacher Instruction Manuals and a Manual for practicals for each of the Science subjects are produced by the NIE.

3.1.3. Integration of School Curricula with the Requirements of the World of Work

The need to forge a close link between the school education system with and world of work in general and the needs of industry and business in particular has been widely discussed in many recent forums among industry leaders. Many have expressed concerns over the quality of outputs generated by the educational systems both at secondary and tertiary levels in producing prospective candidates who are employable in terms of hard and soft skills. In Sri Lanka the general secondary education seems to have been designed almost exclusively to prepare young people for higher education, though in reality only a very small selection enters institutions of higher learning. On the other hand technical and vocational education and training (TVET) at the secondary level is seen as the domain of those whose academic capabilities are not adequate for higher education. It appears that preparing students for academic or professional education at tertiary level is no longer the sole objective of secondary education. Secondary education is expected to serve multiple purposes such as preparing students who enter the world of work either as trainees, wage employees or as self-employed entrepreneurs. Having recognized this need a clear commitment has been made in the secondary curriculum. A subject called Practical and Technical Skills has been introduced at the junior secondary level covering areas in food and agriculture, information organization, business activities, visual and graphic design.

At the Senior Secondary Level (Grades 10 & 11) a group of several technical subjects have been introduced and the students are required to select one subject from this group. The demand for some of these subjects is very low according to the number of students sitting those subjects at the G.C.E. (O-L) examination and also appears to vary in different schools due to lack of infrastructure and availability of teachers. These subjects are not properly recognized by any technical authority in Sri Lanka and appear to have no direction. The introductory notes given in TIMs of some subjects have speculated the possibility of linking those subjects with NVQ levels. But neither the teachers nor students are aware of this fact.

Entrepreneurship education as an optional subject has been introduced to the curriculum of the G.C.E. (O-L) from 2007 on the recommendation of the Secondary Education Modernization Project (SEMP) in 2004. However students' response to this subject has declined over the recent years. At G.C.E. (A-L) six technology subjects under the two major sections, hard and soft technology, were introduced in 2010 on the recommendations made by the NEC, based on the background paper prepared by the Chairman of TVEC. However the demand for these subjects according to the Examinations Department is low. The committee reliably understands that expected objectives of this scheme have not been realized.

A new development in this field is the introduction of technology stream for G.C.E. (A-L) in 2013. This stream is introduced under two wide technological fields and the students can select one out of two subjects namely Engineering Technology and Bio-systems Technology together with Science for Technology. In addition the students can select the third subject from ten optional subjects.

3.2 Recent Research in Curriculum Development

3.2.1. The Sri Lanka Association for the Advancement of Education – 2010 Study

The Sri Lanka Association for the Advancement of Education (SLAAED) has published the results of an extensive study on the current school curriculum and its contribution towards the achievement of National Goals and Basic Competencies identified by the NEC in 2010. The overall objectives of this study were supported by the NEC and Asian Development Bank (ADB). Their mandate was to examine the current school curriculum in Years 6 to 11 with a view to ascertaining its contribution to National Goals and Basic Competencies identified by the NEC. This is one of the most comprehensive studies undertaken in recent times involving a team of fourteen qualified researchers.

The specific objectives defined in the terms of reference of the study were to inquire into the following areas.

1. How far the National Goals and Basic Competencies in general education are incorporated in the school curriculum.
2. How far these goals are achieved in competencies developed for each subject in each grade
3. Whether the proposed competencies and competency levels are appropriate for each grade
4. Whether the contents included in the subjects of each grade are appropriate to the age of the student
5. Whether the curriculum in each grade meets the needs of children with different abilities, interests and aptitudes.
6. Whether the Teacher Instruction Guides provide sufficient freedom and support for the teachers to develop the identified competencies
7. How far the School Based Assessment programme contributes to the development of these competencies in the students.
8. Whether the teachers are equipped with the necessary basic competencies to inculcate in students these competencies during teaching.

Some of the major findings and conclusions of this study are given below:

(A) Incorporation of National Goals and Basic Competencies in the Curriculum

This study examines the level of incorporation of National Goals in fourteen subjects from Grades6 to 11. There has been a wide variation in the level of incorporation of National Goals in the subject curricula of all grades. The authors themselves admit that it is difficult to come to any accurate assessment of the incorporation of National Goals in different subject curricula. The report concluded that the basic competencies were also not incorporated as a policy in many subjects of the new curricula and there is a considerable potential for the current competency based curriculum to contribute to the achievement of basic competencies such as those pertaining to personality development, communication, environment and learning to learn.

Therefore these findings cannot be used effectively to address or rectify the extent of incorporation of National Goals in the school curriculum.

(B) Subject Competencies

Subject competencies are the central focus of the new curriculum. Subject based curriculum development teams have identified them from the content of subjects and have added to or integrated the competencies that are expected to be achieved through the process and activities that assist in the development of skills and attitudes that will contribute to the holistic development of students.

It was found that in some subjects like Science, Sinhala and Geography the subject competencies are age appropriate and clearly structured to acquire relevant competencies but the basis of these conclusions are not properly described. The researchers of this study have concluded that the subject competencies and competency levels were not clearly stated and tend to confuse teachers. On the whole the formulation of a competency based curriculum has to be re-examined on the basis of diverse views quoted in the studies. In Health and Physical education curriculum the competency levels seem to be conceived as learning outcomes. In Mathematics on the whole the levels of competencies are not identified correctly to achieve competencies. Researchers with expertise in History and Civic Education have stated that a competency based curriculum has not been accepted universally.

The researchers commenting on the curriculum in Buddhism have stated that it is difficult to assess the competencies listed as they were abstract and lacked clarity. Many researchers were concerned that teachers were not adequately trained to implement the new curriculum and consequently did not understand the total concept of the competency based curriculum or competencies. It was also noted that both ISAs and teachers interviewed had limited understanding of the concept of the competency based curriculum. The conclusions emerging from this study are of critical importance to a review or a re-examination of the competency based curriculum. The report further said that the competency based curriculum lacked flexibility and cannot be a uniform model for all subjects. Secondly, this introduction of changes in the new curriculum should have been subjected to intensive debates and discussions with a wide range of stake holders. It was also the view of this research team that regular monitoring to obtain feedback from schools and external evaluators at regular intervals to assess the strengths and weaknesses, success or failure should have been carried out.

(C) Subject Related Contents of the Curriculum

The report compiled by the SLAAED states that although the curriculum,re-organization in 2006, was expected to reduce the content overloading, this objective has not been achieved in many subjects. It specifies that the History syllabus has been changed in response to criticism, but there had been an imbalance in the distribution of content between Sri Lankan and world history, with greater space devoted to the latter. This report has expressed concerns that the History syllabus is overloaded in the TIM and text book and that the distribution of the content

is also disproportionate grade wise. Similar concerns were raised regarding the curricula of Life competencies, Geography, Buddhism, Hinduism, Science, Health and Physical Education in various grades. Many teachers, ISAs and even curriculum developers complained that the question of subject contains approach to presentation of content in the TIM and the text books are sometimes different and this confuses teachers and affect the teaching-learning aspects of the subjects. This anomalous situation is believed to have been due to the fact that development of curriculum and TIMs of subjects is a responsibility of the NIE while the text book writing and publication is the responsibility of the Educational Publication Department (EPD). This anomaly has to be corrected by appointing representative writers from NIE and EPD for writing textbooks and expert committees to oversee the accuracy of the publications. However, researchers have noted that textbooks published are well organized, illustrative, colourful and attractive.

(D) Suitability of Subject - Content, Age and Grade wise

The syllabus and the contents in TIMs and textbooks are considered as age and grade appropriate in several subjects like Mathematics, Geography, English, Hinduism, Islam, Health & Physical Education, Aesthetic Education and to a large extent in Science. Concerns regarding age appropriation in Grade 6 and Grade 8 textbooks are strongly shown by researchers with subject experts in History. ISAs who participated in this research have commented that some of the subject related materials in Grade 6 and Grade 8 are too advanced or complex in Science, Life Competencies and Buddhism and in Grade 10 and Grade 11 materials in Geography and English.

(E) TIMs and Teaching - Learning Process

The SLAAED report in 2010 has also studied extensively the views of teachers, ISAs and other stakeholders regarding the importance of TIM in the teaching-learning process. TIMs traditionally provided guidelines to teachers on the content and process of curriculum delivery. There have been mixed reaction among teachers, curriculum developers, teacher trainers, ISAs and the subject teachers they interviewed.

Positive Comments:

- Teacher needs are met to a large extent by the TIMs of Science
- Extremely useful to teachers in planning lessons
- Many details are provided under each topic with listed activities in History
- Specifies everything that has to be done, contents, useful hints and guidelines to teachers
- along with a variety of material in Tamil
- TIMs give in-depth guidance as to how every lesson should be planned in Hinduism
- TIMs are self-sufficient giving in great detail how the teacher should perform with regard to each activity in Health & Physical Education.

- TIMs are a must for the effective teaching -learning process

Negative Comments:

- TIMs go into too much detail in some subjects
- TIMs are too crowded and unattractive
- TIMs have so much detail that teachers have no time to read them
- TIMs have a lot of activities but no subject knowledge.

NIE curriculum developers appeared to have devoted much time and effort in producing the TIMs.

In the absence of any effective monitoring there were reservations among researchers, ISAs and teachers on the length of the document. Similar reservations have been expressed with regard to the 5E model which has been used to produce the present teaching - learning methodology in TIMs. Each lesson in the TIMs is believed to have been structured through the 5 steps of 5E model to achieve expected transformation in teaching and learning. Some of the negative responses listed in the research regarding the 5E model based TIMs were as follows:

- Everything is spelt out in the TIMs as what teachers should do from the moment they enter the classroom;
- This kills teacher initiative and desire to be creative (History);
- As the TIMs are too detailed most teachers stick to the methodology given in the TIM rather than be creative (Mathematics);
- The 5E model is student-centered and activity-based, but its rigidity defeats its purpose and limits the creativity and initiative of teachers and students;
- A single approach as followed in TIMs cannot cater to the needs of all subjects;
- The 5E approach is very time consuming; few students participate in exploration and elaboration; it does not meet the needs of very bright and week students.

Based on the above observations the researchers of SLAAED concluded that while appreciating the commitment and the intensive work of the NIE, it may not be necessary to produce such a long and detailed document. The feedback received in this research project indicates that the TIMs have not been user friendly and impose an untenable burden on teachers. It is not read fully by some teachers and they fall back on the textbooks.

3.2.2. National Institute of Education: 2008 and 2009 Studies.

The Department of Research and Development at NIE published in 2008 and 2009, two documents that contain another extensive study on curriculum development titled 'An Evaluation of the Process of Development and Implementation of the New Curriculum in Grades 6 & 10 and Grades7 & 11'. The major conclusions of this study were very similar to those listed in the 2010 SLAAED research document.

- The 5E model used in the present secondary school curriculum development process seems to be less accepted.
- Awareness programs conducted by the NIE have not been very successful, especially in curriculum development.
- There is a mismatch between the expectations of new curriculum developers and the strategies used in the public examinations.
- Formative assessment strategy at various stages has not taken place.
- Another study published by SLAAED in 2010 on `The degree of horizontal and vertical integration of the modernized curricula` introduced at Secondary Level (Grades 6-9) since 2010, presented their major conclusions as follows:
- The analysis of curriculum material for the integration of National Goals showed a wide variation in incorporation in different subjects.
- This study concluded that horizontal integration has not been taken into consideration by the NIE at the point of developing the curriculum or by the ISAs and teachers in implementing it.
- Thematic integration in the subject of English and several other subjects appears to have been successful and satisfactorily maintained. In many other subjects like Tamil Language, Roman Catholicism, the basis of thematic vertical integration has been questioned by the researchers. The major problems in this regard were found in History (Grades 6 -11).

This study recommends that extra care has to be exercised in the formulation of subject competencies and levels of competencies in the competency based curricula. Also it stresses that the curriculum development teams should have wider discussions whether they want the competency-based curriculum be enforced in all subjects or in selected subjects. It recommends that all curriculum developers be given thorough training in formulation of competencies if a competency-based curriculum is to be continued. This report finally urges the NIE to consider whether leaning outcomes, including both content and process outcomes for every subject should be formulated rather than competencies and level of competencies.

The World Bank Report (Transforming School Education in Sri Lanka) published in 2011 has stated that primary education reform programs have been well supported by several development initiatives which included focused teacher education, good quality textbooks and the supply of educational material, rearrangement of classrooms to facilitate guided play and active learning. It concludes that these initiatives have contributed positively and helped improve students' learning at primary level. This report deals with the performance of English Language at various levels and emphasizes the importance of developing and promoting learning outcomes of English as a link language. English Language achievement levels of primary school students have risen over the last few years according to NEREC in 2009. An activity based Oral English program is in operation to expose students to the English language in Grades 1 & 2 of the primary curriculum. The World Bank report suggests several strategies to improve teaching and learning of English at primary school level. It states, "at the level of primary school curriculum it would be useful to introduce the

English alphabet in Year 1 and word charts from Year 2 onwards to enable students to become familiar with the letters from the early stages. Students should also be encouraged to read English language books especially story-books and material that arouse the curiosity and interest of students. This report further emphasizes the need of a better policy framework for the development of English learning in secondary level education in view of its importance at local and global level development. It advocates a program of creating a total immersion language environment in schools where feasible. Also it states the need for the development a well-articulated curriculum framework that motivates and guides the implantation of an effective system of English language education similar to the common European Framework. It also commends the commencement of a bilingual program as an innovation in this respect and suggests various improvements in the light of various challenges faced in Sri Lanka.

A high quality mathematics education is essential for day to day life and work place in the modern world. The World Bank report identifies many deficiencies in the Mathematics Curriculum, TIMs methods of delivery in Sri Lankan primary and secondary school curricula in comparison to current world trends. It suggests that the secondary level curriculum should be sufficiently differentiated to take into account the heterogeneity among students by preparing several mathematics subjects.

The World Bank report emphasizes the need to develop a scientifically literate human capital by improving science education in the school system to achieve a successful knowledge driven global economy to increase the high technology export market.

At present, basic sciences are taught in Grades 1-5 as a component part of integrated Environment Related Activities (ERA) curriculum. However it states that the balance of knowledge, skills/processes and attitudes necessary to acquire specific competencies is not explicitly stated in the syllabus or TIM. The World Bank further points out that laboratory work have not been given sufficient importance in the science syllabus for Grades 6 to 11. It further states the need for ICT in, education of science in schools. ICT is now increasingly integrated into International Schools Science programs. Sri Lankan syllabus or the TIMs have included directions on how to use whatever ICT is available in schools. The teachers have pointed out the over-burdened curricula of science from Grades 6 - 13.

In addition to these comments the World Bank report contains the following observations:

- Quality improvement at the senior secondary level has not received adequate policy attention;
- There is a difficulty in implementing the 5E teaching methodology introduced in 2007;
- The Mathematics curriculum is not properly integrated vertically between the primary and secondary cycles and within secondary education between the G.C.E. (O-L) and G.C.E. (A-L) cycles;

- It has been observed that the teachers have not yet fully understood the subject competency and competency levels in secondary curriculum, especially in science and mathematics;
- TIMs do not provide adequate guidance on the evaluation of competencies;
- Citizenship and Life Competencies be made compulsory for Grades 10 & 11 in the school curriculum;
- History textbooks to be reviewed for accuracy, weightage and overloading.

Response of School Teachers, School Principals, ISAs and Zonal Directors

In the present assignment the team appointed to study the curriculum in general education visited identified schools in the Gampaha District, Galle District, Bandarawela District and Badulla District and had extensive discussions with several focus groups of subject teachers both primary and secondary teachers, ISAs, School Principals and Zonal Directors. The following are some of the major observations made by the team:

In general, the team members and the schools principals and teachers, are in unanimous agreement that the school system has made a unique and foundational contribution to the economic and social development of the country. The contribution made by the Ministry of Education, NIE is also formidable. Everyone appreciated the role played by the NIE, whose major function is the curriculum development and curriculum material development, as the major driving force of the implantation of the national curriculum.

Primary Curriculum (Grades 1 - 5)

- In general, the primary curriculum has very few problems and is well accepted by the majority of teachers and ISAs in schools.
- Some discrepancies between the TIMs and textbooks in mathematics were pointed out.
- In many schools according to the views of the teachers and the principals, more Science and English and content related to personal hygiene should be introduced at Year 1 of Primary level. In fact many school teachers pointed out the need for "Beginners' Science" teaching from Year 1 as before.
- A comprehensive textbook for ERA was suggested.
- In several schools the teachers were not happy with the current assessment system practiced at Primary Level (especially Key Stages 1 & 2). Parents have complained that this system is teacher-biased and does not help the parent or the child to exactly know the progress made by the child.
- Some teachers in Grade 6 pointed out that there have been students who cannot write properly by the time they enter Grade 6. They also expressed concern about the absence of a transparent national level assessment for primary students.

- Many teachers said that the essential competency list published twelve years ago should be updated in the light of new developments and challenges to be faced by these students in the next 10 years.
- Introduction of ICT integrated teaching starting at Primary Level in keeping with global trends.
- Over emphasis of content of Years 3, 4 & 5 that forms the content of the Year 5 scholarship examination prevents teachers from achieving essential learning competencies and the subject competencies stipulated for Key Stages 2 & 3.

Secondary Education (Grades 6-9)

- In general overloading of the curriculum content of many subjects, History, Science in particular was pointed out.
- Many school teachers pointed out those students who enter Year 6 are not ready to perceive a large number of subjects. Many suggested that History, Geography and Life competencies and Civic education should be amalgamated into one subject under Social Studies and then gradually develop the constituent subjects from Grades 6 to 9 in a holistic manner.
- More ICT applications to be included into the subject called Practical and Technical skills in keeping with global needs.
- Several teachers said that the development of subject content from Grades 6-9 is not weighted meaningfully and that some lower grades contain more advanced contents than the higher grades. The balance and the relevance across the grades have not been examined carefully.
- Many teachers are unable to understand the competency levels of subjects in TIMs. There is no basis for competency levels in many subjects.
- Text books in some subjects contain many errors, especially in the English medium texts.
- Text books of some subjects are different from the TIM guidelines.
- Practical work which is an essential feature of science education receives little attention and teachers would like to have a clear list of practicals and instructions for Years 6-9 and Years 10-11 as given for the G.C.E (A-L) curriculum.
- The 5E method may not be successful and is difficult to practice. The thematic curriculum in subjects like Buddhism, Science and many other subjects does not reflect the expected balance and relevance.
- With regard to O-L curriculum many teachers interviewed were of the view that there's no justifiable basis for segregation of subjects into three groups and that most students will not study Geography (an essential subject in general education) in the present system. Therefore, they would like to have an integrated subject, Social Studies, which should include Geography, History and Civic Education. They strongly felt that the student should be given freedom to choose any three subjects and do away with subject groups. This will allow the talented students to select three aesthetic subjects if they so desire.
- Many school teachers suggested making Health and Physical Education, a compulsory subject in the G.C.E. (O-L) curriculum including areas such as

nutrition and sexually transmitted diseases, smoking, drug and alcohol related problems/illnesses in the syllabus in the light of new social trends in Sri Lanka.

- The technical subjects of the OL curriculum have to be re examined in the light of their acceptance and teacher availability in schools. Many teachers felt that there is no recognition of these subjects by any technical authority of the country. There was no evidence that these are linked to NVQ levels as mentioned in the TIMs of some subjects published by the NIE. Many teachers also express the view that assigning regional subjects (work related to regions) may not work, but suggested that subjects like Tourism for Sabaragamuwa and Southern provinces, Gemology for Sabaragamuwa, Hospitality Management in general may be included after careful consideration. Public responses to general education collected by the NEC, via interviews, newspaper advertisements, electronic mails were also considered in these studies. Followings are some of the major comments.
- All existing curricular should be revised.
- Vocational training programmes should be started in schools.
- Health and Physical Education should be made a compulsory subject in the school curriculum.
- Text books are not in conformity with Teacher Guides.
- Do away with Teacher Guides and have only a text book to be strictly followed by the teacher.
- TIMs of NIE should not prescribe everything. Teachers must be allowed to plan out lessons.
- Beauty Culture, Agriculture, Animal Husbandry, Handicrafts etc. must be introduced in Grades 6-9, G.C.E. (O-L) and G.C.E. (A-L) curricula to reduce unemployment.
- Hold a public examination at Grade Nine and select students according to their abilities and direct them to vocational studies or for G.C.E. (O-L)
- All students should be given facilities to learn Information Technology.
- The subjects, Health and Physical Education, Agriculture and Food Technology, Communication Technology should be made compulsory core subjects in G.C.E. (O-L).
- Integrate the subjects of History, Geography and Civic Education into Social Studies in the secondary school curriculum.
- Introduce subjects called Ethics Education at the primary school level to inculcate social values like kindness, looking after parents and elders, learning human rights and social harmony through Peace Studies etc.
- Reduce the number of years in school education by having the G.C.E. (O-L) in grade 10
- Accelerate marking and release of results of G.C.E (O-L) and G.C.E (A-L) enabling students to enter university at the age of 17 years.

4. Global trends in Education / Curriculum Development

The general education sector in Sri Lanka has made a unique and foundational contribution to the economic development and social development in Sri Lanka. Sri Lanka is also one of the countries that successfully completed and campaigned towards Universal Primary Education. The current Sri Lankan Education system is based on several policy reforms implemented in 2003 or earlier.

However it is essential to update the school curriculum to prepare students for the changing world.

	Singapore	Australia	United Kingdom
Primary	**(Grades 1 - 6)** Standard Subjects: English, Mother Tongue Language, Mathematics,Science Optional Subject: Higher Mother Tongue Language Foundation Subjects (Grades 5 & 6): Foundation English, Foundation Mother Tongue Language, Foundation Mathematics, Foundation Science	**(Grades 1 - 7)** Arts, English, History, Languages, Mathematics, Science, Technologies, National Trade Cadetships, Civics and Citizenship (Grades 3-7) Economics and Business (Grades 5 -7)	**(Key Stage 1 & 2)** Science, Physical education (PE), Music, ICT, History, Geography, English, Design and technology, Mathematics, Art and design, Religious education, Personal, social and health education (PSHE) Modern foreign languages (MFL), Citizenship

Secondary	**(Grades 7 - 10)** Students in the Normal course follow either the Normal (Academic) or Normal (Technical) curriculum: In the Normal (Academic) Course, students offer 6-8 subjects in the G.C.E. 'N' Level examination. They have, as compulsory subjects, English Language, Mother Tongue and Mathematics. For upper secondary, Combined Humanities and a Science subject are also compulsory. In the Normal (Technical) course, students offer 5-7 subjects in the G.C.E. 'N' Level examination. This curriculum prepares them for a technical-vocational education at the Institute of Technical Education. The curriculum is geared towards strengthening students' proficiency in English and Mathematics. Students take English Language,Mathematics, Basic Mother Tongue and Computer Applications as compulsory subjects.	**(Grades 8 - 10)** Arts, English, History, Languages, Mathematics, Science, Technologies, National Trade Cadetships, Civics and Citizenship, Economics and Business	**(Key Stages 3)** Physical education (PE), ICT, Science, Music, Modern foreign languages (MFL), History, Geography Design and technology, Citizenship, English, Mathematics, Art and design, Religious education, Personal, social, health and economic education (PSHEE) **(Key Stage 4 - GCSE)** In secondary schools, GCSE courses are taken in a variety of subjects, which are usually decided by the students themselves in Year 9 (age 13-14), however, increasingly more students from schools in England are deciding in Year 8 to study their chosen subjects in Year 9 raising the question as to whether the exams are becoming easier to pass.Typically though, study of chosen subjects begins at the start of Year 10 (age 14-15), although some subjects start earlier, for example Mathematics, English and Science, mainly because these courses are too long to be taught within the traditional 2 years; final examinations are then taken at the end of Year 11 (age 15-16). Virtually all students take GCSEs in English, mathematics and science. In addition, many schools also require that students take English literature, at least one modern foreign language, at least one design

			and technology subject, religious education (often a short, or 'half', course), and ICT (though increasingly this is The DiDA or OCR National, rather than the GCSE). Students can then fill the remainder of their timetable (normally totaling ten different subjects) with their own choice of subjects).

The education systems around the globe are constantly changing to cater to modern social needs. Therefore, the present report examines the current trends in education in a few selected countries. The purpose is to highlight the importance of different subjects and their implementation in the curriculum. The structure of the national curriculum in Singapore, Australia and the United Kingdom are shown in the table below. The notable feature of primary education in Singapore is the teaching of Science and English starting from Year 1 and the integration of ICT in teaching at Primary Level.

In the Australian National Curriculum teaching of Science and Technology starts from Grade 1. Civics and Citizenship is a subject from Grade 3 to 7.

In the UK Science, Physical Education, History, Geography, Design Technology, Religious Education, Personal Social Health Education are taught in Key Stages 1 and 2.

In India primary education in most schools teaches English, Mathematics, Environmental Science and General Knowledge in Classes 1-3. It is significant to note that the primary education curriculum is designed in such a way that students achieve Basic English Language proficiency in a span of about four years.

In Singapore, every student at the end of the sixth year in the primary school sits for a Primary School Leaving Examination (PSLE). This examination tests students' proficiency in the English Language, Mother Tongue, Mathematics and Science. Pupils who fail in the PSLE are retained in the primary school to retake the PSLE in the following year.

Primary education in Malaysia begins at age seven and lasts for six years. The subjects tested are Malay, English, Science and Mathematics. Before progressing to secondary education, year six students sit for the primary school achievement test (PSAT). Primary school children are promoted to the secondary education irrespective of their performance at PSAT.

In Singapore the secondary education is from Grades7-10. Students follow either the normal (academic) or normal (technical curriculum). In the normal (academic)

curriculum students offer 6-8 subjects in the G.C.E. (N) Level examination. Their compulsory subjects include English, Mother Tongue, Mathematics, Combined Humanities and Science. 25% of the students of the secondary school who complete G.C.E (N) level enter Institutes of Technical Education. 40% of the students who sit G.C.E (N) level examination enter polytechnic colleges. Under the Gifted Child Scheme students who obtain highest marks in the PSLE enter specialized independent schools which allow them to enter the universities in 4-6 years.

In the Australian Secondary Curriculum Arts, English, History, Languages, Mathematics, Science, Technologies, National Cadetships, Civics and Citizenships, Economics and Business are included

In the UK the secondary school curriculum (Key Stage 3) includes new subjects namely, personal, social, health and economic education. In Key Stage 4 in secondary educations (comparable to our G.C.E. O/L), G.C.S.E. courses are taken in a variety of subjects usually decided by the students.

The global trends in education/curriculum are published in two books namely Defining a 21st Century Education (Craig D. Jerald, 2009) and Curriculum 21 (Heidi Hayes Jacobs, 2010) and several other international publications. Authors of the book 'Curriculum 21' state that it is necessary to prepare the students for a changing world in the next few years by upgrading the school curriculum. It identifies five global trends that a 21st century student should be knowledgeable in namely, Economics, Science and Technology, Demography, Security and Citizenship and Education.

The future curriculum in general education should include plans for development of new skills among students to face the impact of challenges of the 21st century. The major challenges of the 21st century are automation, globalization, work place changes and increasing personal responsibility. Integration of Science and Technology and Computer Technology into the curriculum in addition to general competencies is a must in the 21st century.

In addition many in the international scene believe that the most poignant trends in the next ten years educationally are the increased influence of the computer, virtual classrooms and internet access. Interaction of technology pedagogically is the true factor of curriculum and all prospects associated with educational directions. According to this author there is no complacency as the educational world now developing in cyber space will become the main delivery system for the very near future. However, there is always a need for basic academic skills, basic competencies with emphasis on communication skills, mathematics and science.

Trends in development of health problems of the population in many countries are exerting new pressures to expand or reorient curricula. These include epidemics like AIDS, communicable and non-communicable diseases, nutrition related diseases, sanitary aspects of water, food and oral hygiene.

These world trends in curriculum development are cited to highlight the importance of them in designing the Sri Lankan curricula.

5. Conclusions and Recommendations

In Sri Lanka the school curriculum process namely, the curriculum planning, curriculum presentation, curriculum implementation and curriculum assessments are streched to the maximum by addition and deletion of subjects, various conditions at different times and has reached a saturation point. However, the present achievements and developments in the curriculum process have been well supported by an extensive research base on education by experts and certainly conform in general to school curricula in most countries of the world. Therefore very little change can be introduced to the system and that also has to be done extremely carefully.

However the following recommendations are made considering the evidence gathered through pervious research on the subject, focus group interviews with school teachers, principals, zonal directors, curriculum developers of the NIE and relevant officials of the Education Ministry, TVEC senior officials and especially current global developments and practices.

> NOTES: Curriculum presentations in the form of TIMs and textbooks have been widely criticized for the lack of balance and relevance of subject content at different grades. There were also differences of subject content between TIMs and textbooks. The SLAAED research report of 2010 showed that most subject curricula do not incorporate National Goals and Basic Competencies suggested by the NEC.

Recommendation 1: Reconsider preparation of curriculum grids of each subject across the grades horizontally (example from Grades 6-11) and vertically to include distribution of subject contents, relevant activities over the period of a school year, taking into account the National Goals and Basic Competencies suggested by the NEC with the help of a panel of subject experts. (Annexure 1)

Recommendation 2: Writing of textbooks to be done by a panel of experts of the NIE, other experts and members of the Education Publications Department with monitoring by an independent expert.

> NOTES: In the research described earlier (SLAAED 2010), teachers interviewed indicated that subject competencies used in TIMs of some subjects are confusing and not understood by teachers. This was also confirmed by the World Bank Report (2011). Identification of subject competencies is not clear. They appear to have been selected artificially by adding an action verb to the subject content. However general competencies to be achieved in subjects are clearly stated in TIMs.

Recommendation 3: Reconsider writing TIMs if necessary including suitable subject content identification and relevant activities with clear learning outcomes expected from the teaching learning process of the subject at each grade.

NOTES: There is a widely accepted view that the TIM and textbook of some subjects are different and the instructions given in TIMs are also too difficult to carry out in the classroom. Subject contents of some subjects are overloaded and cannot be completed during the school year

Recommendation 4: Student and teacher friendly textbooks to be produced by combining relevant material of TIMs with carefully designed chapters: each subject to be properly planned by a subject expert taking into consideration the balance and relevance of content for each grade: each chapter to include the title, the introduction, learning outcomes, instructions for teachers, summary and self learning exercises: teachers to be advised to strictly follow the textbook.

Primary School Curriculum

NOTES: The primary school curriculum is well planned, structured and many of its features are on par with world accepted primary school curricula. However in keeping with the global and regional tends in curriculum development it may be necessary to introduce teaching Science in the primary school curriculum from Year 1. At present the subject Environmental Related Activities (ERA) contains more social aspects and the science content is diluted.

Recommendation 5: Teaching of Science in the form of scientific inquiry related to life processes and living things, materials and properties and physical processes based on activity learning to be introduced from Year 1 as a separate subject or by strengthening the present ERA syllabus.

NOTES: English is the principal language of the global knowledge economy. English language skills and competence are considered the most important economics assets of the modern world. There is a strong and rapidly growing demand for English language learning in Sri Lanka. Most children who are admitted to Year 1 have already followed some formal English in their pre-schools. The current Grade 1 activity based oral English syllabus is not adequate. We have noted that all international schools and some government schools already promote teaching formal English from Grade 1.

Recommendation 6: Commence proper teaching of English from Grade 1. Introduce alphabet and small vocabulary related to day to day activities using a simplified story book to encourage reading habits and communication skills.

NOTE: ERA in primary curricula needs to be revisited in the light of current needs of the country, especially in health and nutritional education.

Recommendation 7: Introduce more basic features of health education, hygiene, oral care, favorable nutritional considerations along with aspects for prevention of child abuse in the curriculum of ERA from Grades 1 to 5.

Assessments in Primary School Curriculum

NOTES: In Sri Lanka the primary curriculum assessment data are not readily available nationally. Most teachers interviewed said that the primary school assessment of essential learning competencies is teacher-biased and not transparent. The parents have complained they would like to know the position of their children with respect to the children's academic achievement conveyed in the form of a report. Many countries in the world adopt a clear transparent system in this respect. In UK Statutory Assessment Test (SAT) is held at Key Stages 1 & 2 and the results of this test are given to parents subject-wise in a report. In Singapore, Primary School Leaving Examination (PSLE) is a national examination administered by the Ministry of Education. In Malaysia, Primary School Assessment (PSA) is held at the end of Year 6 to assess the suitability of students for secondary education.

Recommendation 8: Have a wider discussion among curriculum developers, educationists and other stakeholders on the need to have a transparent and realistic method for national assessment of the primary school curriculum Junior Secondary School Curriculum (Years 6 -9)

NOTES: The UNESCO report (2005) on 'Secondary Education Reform - Towards a Convergence of Knowledge Acquisition and Skills Development' states that the secondary education system in Sri Lanka needs to focus on the development of a curriculum which produces productive, responsible personalities well equipped for life and work in today's technology based society. The World Bank report in 2011 states that quality improvement at the secondary education level has not received adequate policy attention. The majority of teachers interviewed were of the opinion that the current number of subjects (twelve) at the junior secondary level should be reduced and suggested amalgamation of several subjects and to introduce a list of practicals for Science from Grades 6-9. This was also suggested in the NEC recommendations of 2003.

Recommendation 9: Consider ways of reducing the overload of subject from Years 6 to 9 by combining the three subjects History, Geography and Civics & Citizenship Education into one subject as three compulsory sections of Social Studies.

Recommendation 10: Introduce more ICT related activities to the Practical and Technical studies

Recommendation 11: Introduce a defined list of practicals from Years 6 to 9.Senior Secondary Curriculum (G.C.E. O-L)

NOTES: Proposal for a National Policy Framework in General Education in 2003 in its changes proposed in the Senior Secondary curriculum (Grades 10 &11) as "History, Geography and Civics offered as Social Sciences with three compulsory sections in order to prevent a multiplicity of subjects at the G.C.E. (O/L) Examination". In view of the above and opinions expressed by stakeholders led to the following recommendations.

Recommendation 12: Combine the three subject areas of History, Geography and Civic Education into one subject as three compulsory sections of Social Studies.

Recommendation 13: Some Technical subjects in group 3 have very low demand as seen in G.C.E. (O-L) examination statistics (Electronic Typing and Shorthand). Consider removing such subjects from the curriculum.

Recommendation 14: Technical subjects should be recognized by relevant authorities with a view to linking up to qualifications of the National Vocational Qualification (NVQ) Framework.

Recommendation 15: Propose to introduce relevant topics in basic Economics into the subject Entrepreneurship in view of global needs.

Recommendation 16: To make Health and Physical Education a Core- subject with more relevant contents to address the current and future social problems in view of its importance today.

Senior Secondary Curriculum (G.C.E. A-L)

Recommendation 17: The following proposal previously proposed in 2003 is recommended again: Three subjects should continue to be selected from the list of subjects. A maximum of two subjects from selected areas of specializations may be stipulated by a Faculty of a University or a College of Technology. The third subject could be selected from the full range of subjects.

Recommendation 18: Textbooks for all G.C.E. (A-L) subjects should be made available especially for the benefit of the Science Stream of students.

Work Related Curriculum Based on Regional Requirements

> NOTES: The response to this from school teachers varies. Some suggested tourism, training in Gemology, Hotel management etc in different regions. Many were of the view that schools may not have the infrastructure facilities and human resources to initiate a program of this nature. They also noted the presence of seprate authorities or institutions already offering training in these fields at various levels.
>
> Also some of the Technical subjects in the G.C.E. (O-L) which have been introduced have no direct pathways for employment or higher education without proper accreditation by Technical Authorities in the country. However, in view of the present concerns regarding the employability of early school leavers who do not wish to pursue higher education, the following recommendation is made.

Recommendation 19: The possibility of accrediting, linking the currently available technical subjects and new subjects to be introduced at regional levels to suit geographical and culture variations by the Tertiary and Vocational Training Authority should be explored in consultation with TVEC, NEC, NIE, MOE and the National Apprentice and Training Authority (NAITA).

School Based Assessments (SBA)

> NOTES: The response of teachers and ISAs to the effectiveness of SBA was extremely negative. Although SBA should include all forms of assessments conducted by the teachers at classroom level it does not appear to take place systematically and effectively. Educationists all over the world recognize the immense potential of SBA in terms of validity and flexibility.

Recommendation 20: To develop mechanisms at national level to ensure the public confidence and credibility in implementing SBA.

Special Recommendations for Teaching Mathematics,Science Information and Communication Technology and English in the School Curriculum and the need for Benchmarking through Assessment

> NOTES: Success of education in any country at school level is internationally compared mainly thorough the subjects Mathematics, Science, ICT and English. This claim is well supported by all research reports, the UNESCO report and the World Bank Report dealing with Sri Lankan Education.

Recommendation 21: Mathematics, Science and English to be taught formally and objectively from Grade 1 onwards.

Recommendation 22: The present Mathematics curriculum should be revised at two levels: Grades 1 - 9 and Grades 10-11.

Recommendation 23: It is proposed to introduce two syllabi in Mathematics for G.C.E. (O-L) cycle as is the practice in Singapore and UK. One to cater to the needs of those who wish to pursue G.C.E. (A-L) subjects which requires higher mathematical knowledge and skills and another for those who need a practical knowledge of Mathematics.

> NOTES: There is a need to formulate a clear National policy framework that sets goals of school science education aiming at science and technology development in the country.

Recommendation 24: Science to be introduced to the curriculum from Grade 1 onwards to produce a new scientifically literate population

> NOTES: In Sri Lankan the school curriculum in ICT is not formally included till the school Year 10. Even at this level it is an optional subject. The Sri Lankan Qualification Framework (SLQF) states that holders of SLQF 1 (equivalent to the G.C.E. (O-L) qualification) should be able to demonstrate oral and written communication skills and basic ICT skills. It is necessary to take steps to introduce ICT sufficiently earlier like in many other countries.

Recommendation 25: Introduce ICT from the primary education level to enhance teaching and learning across the curriculum.

Recommendation 26: It is recommended that in developing curricula in Mathematics, Science and English the curriculum developers should take into account the international benchmarks set by the International Association for the Evaluation of Educational Achievements (IEA) though its international assessments in Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literary Study (PIRLS).

NOTE: Implementation of the above recommendations should ultimately provide opportunities for polished jewels made from cut-stones to be fixed into Gold or Platinum ornaments to add further value

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