

PROGRAMMES AND PROJECTS

This section describes some of the significant curriculum projects, pilot studies and initiatives which member countries have undertaken over the last five years. The number and variety of these is very great. The projects outlined here are selected because they are of special significance in the countries which reported them or they have features which may be of interest to other countries. Descriptions are based solely on material submitted by the countries concerned. In some cases, in the interests of economy, certain details are omitted. Inevitably the focus is on centrally-planned curricular reforms. The picture painted probably obscures somewhat the extent and richness of the many local, modest, small-scale efforts of teachers and schools.

Wholesale Reform

The distinction must be borne in mind between those countries which have undertaken wholesale and sometimes radical reform of the secondary curriculum in recent years and those where reform has meant the revision of certain aspects of the curriculum. The general picture in almost every Commonwealth country is of rethinking and activity. The scene varies from one of routine institutionalized renewal of the curriculum to radical and concentrated reform. The vast majority of projects are initiated, sponsored and directed by the national or state/provincial level educational authority. In some cases there has been considerable input from international and bi-lateral agencies.

Following are but a few examples of projects and programmes concerned with wholesale reform.

BANGLADESH

In 1975 the National Curriculum and Syllabus Committee was set up to examine proposals from the National Education Commission and to suggest new syllabuses for the whole school system:

The committee submitted its report in four phases. The reports include: Conceptual frameworks and principles detailed curricula and syllabi for selected subjects for each class, guidelines for text-book writing and suggestions for teachers' guides and aids New text-books were introduced in Classes One to Three in January 1978 and Classes Four and Five in January 1979. The text-books for Class Six (will be) introduced in January 1980.

The Bangladesh programme was planned, approved and implemented for the primary level in three to four years.

BARBADOS

A similar programme in Barbados managed to complete syllabuses for a number of subjects at the primary level between 1974 and 1979 and is still piloting secondary syllabuses. One problem, however, has been that this length of time has proved inadequate for efficient implementation.

The National Curriculum Development Council was a project set up by Cabinet decision in 1974; its duties were mainly:

- (a) To review the existing curricula in the various schools.
- (b) To advise the Minister on the subjects to be taught at each level in the primary and secondary schools and the time to be allotted to the various subjects.
- (c) To set up committees for the production of syllabuses, guidelines, lists of appropriate textbooks and teaching material, and to make recommendations thereon to the Minister.

The overall aim was to improve the quality of the curricular offerings in the various schools at primary and secondary level. The length of life of the NCDC was not specified.

During the five year period 1974-1979 primary syllabuses were completed in the following subject areas:

Agriculture, Art and Craft, Language Arts, Mathematics, Health Education, General Science, Music, Social Studies, Religious and Moral Education. These have been piloted, revised and are being implemented.

The secondary syllabuses produced were in the areas of Agriculture, Industrial Arts, French, Spanish, History, Health Education, Language Arts, Art and Craft, Music and Geography. Secondary Language Arts is being implemented in 1979, but the other subjects are still being piloted.

The specific vocational subjects being taught are Typewriting, Business Education, Agriculture, Industrial Arts, Housecraft; of these Agriculture and Industrial Arts are under the aegis of the NCDN.

The content of the syllabuses, especially Agriculture and Social Studies, is not rigid, but can be utilized by individual schools to cement a close relationship with their community.

The main problems associated with this programme are:

- (a) The adequacy of resources to efficiently implement the syllabuses over the entire island within a relatively short period of time.
- (b) The apparent tardiness of subject committees to work on the production of syllabuses. For years text-

books, syllabuses and materials had been imported. Effort is therefore needed to spur on the sub-committees to complete their tasks.

Members of subject committees, however, are also teachers and carry a full-time work-load.

SWAZILAND

Unlike Barbados which exemplifies syllabus renewal that is carefully piloted before being implemented nationally an increasing number of countries use the pilot or experimental formula on a small scale and then test and evaluate before committing themselves to national level programmes. This device needs careful and realistic timing and phasing. The Swaziland Secondary Curriculum Project is an example of a scheme which incorporates these features.

The project is sited at William Pitcher Teacher Training College Campus, Manzini, which is an urban area. The building housing the unit is shared with the Primary Curriculum Unit (supported by a USAID project) to facilitate close co-operation. It is a National Curriculum Development Unit under the control of the Ministry of Education. The Unit is supported by a UNESCO/SIDA project with proposed bi-lateral assistance from UK sources.

Secondary Curriculum Project

The short term objectives are:

- (a) To establish a fully operational Secondary Curriculum Unit.
- (b) To train a staff of Swazi national personnel to operate the unit within four years of the opening of the projects.
- (c) To initiate the implementation of a reformed curriculum by:
 - producing the curricular materials for years One, Two and Three.
 - trialing, piloting, evaluating and revising materials for years One and Two.
 - evaluating the trial teaching of year 3 materials.
 - assisting in the in-service and pre-service training of teachers necessary for these three operations.
- (d) To initiate a system of continuous assessment, aptitude testing and pupil guidance by:
 - producing draft II* aptitude tests suitable for administering to secondary school entrants and Form II pupils.
 - producing draft II* attainment tests for Form I

and draft I* attainment tests for Forms II and III.

- training Guidance Teachers in the administering and interpretation of aptitude and attainment tests and in the techniques of pupil guidance based upon these interpretations.
- training all teachers in the techniques of administering standardized attainment tests and recording results according to an established system.

(e) To negotiate reformed examination prescriptions and examining systems with the existing public examination body.

(f) To advise, on request, the Ministry of Education on any matters related to the attainment of these objectives.

UNESCO/SIDA inputs are:

(a) Personnel

1 Curriculum Co-ordinator/Project Manager

1 Science Curriculum Specialist

1 Development Studies Curriculum Specialist

1 Home Economics Curriculum Specialist

1 Elementary Technology Curriculum Specialist

1 Specialist in Educational Research

Consultants: International
Local

Administrative and Production Staff

(b) Prototype Materials Production Workshops

Local personnel costs

Materials

(c) Equipment and Miscellaneous Costs

The proposed inputs from UK sources are:

1 Mathematics Curriculum Specialist

*A draft I tests is one that has been administered to one group in the process of standardization. A draft II test is one that has been administered twice.

Subject Focused Reform

In the early 1960's the pattern throughout the world was for reform to be concentrated on single subjects within the curriculum. Change was conceived centrally and implemented, if at all, via the "ripple" effect of a "model" project. More recently the concept of a model project has given way to the idea of the pilot project (which may ultimately serve as a model after evaluation and revision). Today, as we have seen, pilot projects are extensively used by central agencies and with some limited teacher involvement. The emphasis too is still on subject-focused reforms. Currently, however, it is rare for a single subject to absorb the attention of the curriculum developers.

Most countries are concerned simultaneously with the range of subjects across the curriculum and, as we have seen, with the integration of some of them. Today too, there is effort to relate the changes in any one subject to similar changes in the approach to other subjects. For example, reform in a number of subjects may exemplify a concern with relevance or the adaption of the contents to suit mixed-ability teaching. But the most important emphasis to emerge from analysis of the projects and programmes is concern with reform related to the internal and external efficiency of the school. In terms of internal efficiency, (the concern with how much and how well can the student learn with given resources), the problems are how to relate the aims, objectives and contents of syllabuses to the developmental stages, life-experience and necessary life-skills of the student and how to devise the most effective teaching-learning strategies. In terms of external efficiency the problems are how to incorporate up-dated but ever-changing new knowledge and how to select material which is relevant to the social, economic and political developmental needs of the nation. Following on from these concerns some curriculum projects emphasize the need to ensure relevant and effective implementation of changes by involving the teachers and sometimes the community in curriculum renewal. The extent to which countries have achieved teacher and community involvement varies greatly and is somewhat problematic.

SOLOMON ISLANDS

The process of secondary curriculum development in the Solomon Islands, 1975-79, exemplifies many of these concerns. The government's overall aim in education is to provide a co-ordinated system of education which will:

- (a) Meet the nation's needs for skilled manpower as quickly as possible.
- (b) Provide a basic education for all children, suited and related to the environment in which they will live and work as adults.

The Solomon Islands has an expanding secondary school system with about thirty-four percent of primary school leavers entering secondary school. In a complete overhaul of the curriculum new course objectives and guidelines have been developed since 1975:

The aims of each course can make a unique and significant contribution to the achievement of the national educational goals of the Solomon Islands.

The purpose of the Secondary School Curriculum Committee is to co-ordinate and facilitate the functions of the various subject committees/panels in developing a relevant secondary school curriculum.

It is intended that the community will become more involved and would be informed by newsletter, radio, seminars and lectures, visits to CDU and teacher-parent associations so that they will accept and support the changes taking place in curriculum development.

Having decided on the specific aims for each subject, the (subject) panels devised an appropriate content. The panels also do their own original writing based on research here. For example, the Social Science Committee has already produced units on "Making a living in Honiara". The English panel are making use of local stories as comprehension exercises. In Mathematics the panel members asked most employers in Honiara about the skill that they expect of their workers when they first join the business. These findings were incorporated into the Maths curriculum. These are but a few of the examples of our attempts to give the curriculum greater relevance to the Solomon Islands.

As you can see much of the curriculum development work at the secondary level is teacher-based. (Report submitted by the Curriculum Development Officer, Secondary).

The process of curriculum development in the Solomon Islands is ultimately subject-based and exemplifies concerns with curriculum quality. The problems which emerge there are common to many countries. These are:

- (a) Lack of professional and technical expertise,
- (b) Lack of teacher education and training in the philosophy and methods of the subject area.
- (c) The persistence of traditional teaching approaches.
- (d) Lack of finance for resource facilities, workshops and in-service work.
- (e) Lack of community involvement at present.
- (f) Teachers themselves are very busy people so the work tends to be slow.

SCIENCE

Perhaps the most widespread concern in terms of subject-based reform has been to update and localize science. A few case studies must suffice here to exemplify a wide variety of projects.

BOTSWANA

Botswana is facing massive expansion at the secondary level and about seventy percent of the primary school leavers are now entering secondary school. The Integrated Science Programme was designed to meet problems arising out of this expansion.

Integrated Science Programme

Concern about the poor quality of science pupils and the need for science-based graduates in the country, led to the formation of Subject Panels drawn from experienced teachers in secondary schools in 1972.

Dissatisfaction with the science syllabus called "Introductory Science" was expressed by both teachers and Ministry Officials. There was no guidance on the depth to which topics were to be treated and some of the topics were considered unsuitable for the first three years of secondary school. Moreover the syllabus was presented as a series of topics in physics, chemistry and biology with physics forming the largest component in the syllabus.

A paper was put forward proposing a complete revision of the science syllabus and presenting arguments for the adoption of 'Integrated Science' in the first two years of secondary school. Arguments similar to those put forward by the Schools Council in England were presented. Children at this age should see science as a whole; there were arguments about the unity of science and a plea for doing away with the pigeon-holing of knowledge and the belief that pupils would gain a better understanding of the unity of science if they were taught science in an integrated fashion by one teacher. The case for integration was thus firmly established and it was the duty of the Science Curriculum Development Officer and the National Science Panel to put the above ideas into practice.

Integrated science schemes in other parts of the world were studied by the Panel and it was finally decided to base the Botswana Integrated Science course on the Scottish scheme. The Botswana scheme came to be called "Science by Investigation in Botswana" emphasizing the practical nature of the course. The broad aims of science education at this level as contained in Curriculum Paper No 7 of the Scottish Education Department were adopted unaltered, including the three main themes of Energy, the Particulate Nature of Matter, and Life, which were to form the main integrating links in the course.

The National Science Panel subsequently decided to adapt the Scottish scheme to conditions in Botswana.

The question of relevance to the Botswana context was considered while at the same time considering the needs of the majority of pupils whose education would be terminal at the end of three years of secondary schooling. The course at the same time had to lay a firm foundation for those pupils who would be continuing with science in the fourth and fifth year of secondary school.

The course was divided into 15 units which were to be taught in the three years of Junior Secondary education. Each unit was supported by a series of pupil worksheets and teachers' guides. Regular in-service courses were to become an integral part of the education system in Botswana, mainly to familiarize teachers with the new scheme as it was recognized that most teachers had specialized in only one science subject at university. Detailed teachers' guides prefaced with specific objectives were produced for those unfamiliar with the other branches of science. Recently two textbooks to supplement the course have been written by local authors from Botswana, Lesotho, and Swaziland. The books are titled: 'BOLESWA Integrated Science' Books I and II.

The main changes in emphasis have been from a talk and chalk method of presenting science to a more pupil-based course where pupils are involved in doing the experiments themselves or what has been called a 'guided discovery' approach by the Nuffield schemes. There is thus more stress on practical work done by the pupils and less stress on demonstration work done by the teachers. There is a move to reduce rote learning and to develop the pupil's ability to think for himself, to reduce factual recall of information and an emphasis on comprehension and application of knowledge gained to new situations. This is reflected in the type of questions asked in the National Examination which are in the main objective type questions or structured where longer answers are required.

Pre-testing of questions for examination purposes is now being carried out with an item analysis at the end to increase the validity and reliability of questions set in these examinations.

GUYANA

Guyana is one of a number of countries adapting science curricula for the Caribbean Examinations Council Examination at Form Five level. Since 1976 Guyana has made its secondary education free for all. Approximately eighty-seven percent of primary school leavers now enter secondary school and up to seventy-three percent continue up to fifteen years of age. Most teachers are non-graduates and roughly half are trained. Guyana has introduced general science in Forms One to Three and is concentrating upon Integrated Science for Forms Four and Five.

Pilot Project - Integrated Science at 4th and 5th Form Levels

Objectives:

- (a) To provide teacher and pupil material to enable teaching of the science syllabus for the Caribbean Examination Council Examination. (The syllabus is a two-year one for the 4th and 5th forms).
- (b) To provide background/resource materials which emphasize scientific applications in everyday life and industrial activities particularly for local industries.
- (c) To develop teacher competency through workshops and seminars.
- (d) To develop skills in measurement and evaluation relevant to the continuous assessment requirement of the CEC examination.

The project is spread over the rural/urban districts; and has initially a five-year limit 1977-81.

Between 1977 and 1979, 10 schools and 25 teachers were involved. By 1981 there will be 13 schools and 35 teachers participating in the Project.

The strength of the pilot project lies in:

- (a) Links with industry and everyday applications.
- (b) Participation by teachers in preparing and testing materials.
- (c) The variety of materials for most situations.
- (d) Emphasis on students acquiring skills and attitudes in addition to knowledge of content.

Two problems in the main weaken the effectiveness of the project:

- (a) A shortage of competent science teachers.
- (b) A shortage of reprographic facilities.

The essential feature of the project is the production of resource materials, background reading and teacher guides in regard to the methodology required for Integrated Science. This exercise has great relevance for Guyana as it could lead to a resource/retrieval system which would assist science teaching generally. Examples of materials produced so far include:

- (a) Studies on local industries.
- (b) A teacher's guide to project work.
- (c) A guide to assessing enquiry skills and attitudes.
- (d) An introduction to independent learning.

FIJI

Basic Science Forms 1-4 and Physical and Biological Sciences Form 5

Fiji along with other Pacific Islands has developed a Basic Science course for Forms One to Four, the aims of which are:

(a) To give the likely Form Four "terminator"
a good all-round terminal course.

(b) To give the likely on-goer a satisfactory
foundation of post Form Four work.

Sponsored by the Ministry of Education with help from UNDP/UNESCO this is a large scale project begun in 1972 and scheduled to be trialed and nationally implemented to Form Four by 1976.

This is an integrated science course; to a large extent activity-based and child-centred and thus has been large degree of acceptance.

The course was nationally implemented without printing pupil's books. This has created a lot of problems.

Fiji has also developed a more advanced physical science and biological science curriculum for Form Five. After trial and revision between 1975-80 it is due to be implemented in 1981.

This is a totally different course as compared to the physics courses based on the 1945 prescription. The (new) physics course is expected to replace these courses but the thinking in some quarters is that the new course should place the same emphasis on content as the older courses did. However, this is not possible in view of the (ir)relevance of some of the topics in the old courses (to present education needs).

Also the course is pupil centred, activity based and is designed to develop certain skills and attitudes along with scientific concepts. This called for lots of activities to be carried out by pupils in small groups. In many cases this is not being done due to large science classes (up to 45 in many cases) and inadequate facilities. This leads to the course being taught in a traditional fashion and therefore some of the objectives of the course are not achieved.

For its Biological Science course for Form Five there was great demand:

The course was readily accepted by most schools in Fiji. There was a great demand for its introduction in the non-trial schools during the trial stages, and as a result only a few schools are not taking this course at the moment.

However,

..... it has been necessary to recognize that pupils will have come from widely differing backgrounds and that the schools where the subject is taught will vary considerably in teaching facilities and equipment, class sizes, staffing stability and teacher competence.

NEW ZEALAND

Form Five Modular Science

As a last example of various approaches to the development of science at the lower secondary level, the New Zealand modular science programme is outlined for its attempts to incorporate flexibility and individuality.

Objectives:

To develop modules of units of work from which teachers could construct a course in Biological Science, Physical Science or Alternative Science which would:

- (a) Provide for individual differences in students and opportunities for students to gain satisfaction through involvement.
- (b) Encourage students to study individually; seek knowledge from the descriptions and explanations of others; operate in groups and accept that other people do not always see the same phenomena as they do.
- (c) Emphasis is placed on individual student development and on methods of learning.

Location:

Department of Education, Wellington, New Zealand.

Control:

Director of Development
Curriculum Development Division
Department of Education
Private Bag
Wellington
New Zealand

Time-Scale:

1974-1984

Finance:

During trials finance comes from the Curriculum Development Division's publications and conference vote.

Size:

Trials are being carried out in 40 schools. Probably there will be an extension to all secondary schools in New Zealand.

Outcomes to Present:

A wide variety of courses being offered in trial schools.

A significant change of school and class organizational patterns.

A significant degree of experimentation with teaching practices and learning styles.

A concern about internal assessment has led to the production of guidelines, item banks, and increased knowledge about scaling procedures in both the school and national context.

A rapid development of resources and techniques at school level to assist individualized learning programmes.

Some progress with resource development for teacher training.

Future Activities:

The continued collection of module teaching approaches and identification of resources. From this the production of guidelines for each module. Publication of these during 1979-80.

The continued development of item banks.

Study proposals for the most effective ways of reporting attainment and the attributes of students.

Study the feasibility of internal assessment on a national scale in these subjects.

Evaluation:

There is on-going evaluation using questionnaire and structured interviews with teachers and students.

MATHEMATICS

A number of countries have experimented with mathematics curricula. Nigeria and Tanzania implemented the Entebbe (new) Mathematics which had already been adopted in Uganda but took the brave decision to revert to traditional mathematics once experience showed that in the Nigerian and Tanzanian context the experiment was not a success. In the Caribbean and the South Pacific the modern approach to mathematics is well established. In England, according to HM Inspectorate:

Modern mathematics has been understood differently by different people; for some the emphasis has been on new content while for others it has been on teaching by methods which are practical and informal. Again, for some people the new content has implied merely a variety of topics with no close interconnections, whereas for others intellectual coherence is paramount. This latter aspect has been important in some other countries, where "modern" mathematics has stressed the introduction of new concepts with the expressed intention of using them subsequently in a highly structured way to clarify long-standing areas of difficulty. Generally speaking, English schools have seized on the informal presentation of modern ideas, but the disciplined use of the concepts to build up the more difficult areas of the subject has been little pursued; to do so could in any case demand more carefully planned continuity into the secondary schools than we usually find; the ideas, moreover, are difficult for non-specialist teachers.

If the purposes of some modern ideas are misunderstood, time can be spent on trivia, and insufficient practice given to developing understanding and mastery of the structured skills which are essential for future progress In spite of the widespread misunderstanding the reforms have brought some substantial advantages the changes in recent years have diminished the long-standing fear of mathematics which so many children had ... there is often agreement that the pupils benefit from the greater emphasis now given to graphical ideas, and to statistics and probability.

(HM Inspectorate, Mathematics, Science and Modern Languages in Maintained Schools in England: An Appraisal of Problems in some Key Subjects, Department of Education and Science, 1977).

BOTSWANA

Cambridge School Certificate Mathematics

Botswana was deeply concerned about "the alarming failure rate" in the Cambridge Mathematics Syllabus C Examination. Therefore, a new Certificate in Mathematics course was jointly designed by Botswana, Lesotho and Swaziland, to improve students' "competence in manipulative skills and increase their confidence."

The chief component of this course is "basic numeracy" which can be considered as a combination of the ability to perform calculations and the recognition of circumstances in which a certain calculation is appropriate.

The course is designed to strengthen the pupils' grasp of basic concepts and operations, to reinforce

their knowledge of topics previously studied and to broaden their range of skills. The emphasis is on the practical applications of mathematics to general careers and non-scientific further study

Employers were familiarized with the nature and content of the course and most of them appreciate its worth in the knowledge that not only is a Certificate in Mathematics more useful and meaningful than a failure in the Cambridge School Certificate Mathematics Syllabus C, but that this is a move in the right direction for our young school leavers.

NEW ZEALAND

A similar concern with standards is behind the New Zealand School Certificate Mathematics Programme initiated in 1975.

Nelson-Marlborough Mastery Levels Assessment Scheme

Objectives:

To establish a system of assessment whereby each pupil is motivated to achieve at a level best suited to his/her ability.

To define criteria for a five-level mastery system against which achievement may be tested progressively during the Form Five year.

Operation:

(a) The project operates in secondary schools in the Nelson-Marlborough region.

(b) Operation of the scheme is in the hands of a local co-ordinator, assisted by a committee of local teachers, the Education Officer (Secondary Mathematics), and the Curriculum Development Division, Department of Education, Wellington, which acts in an advisory capacity.

(c) The project is sponsored by the Department of Education through the School Certificate Examinations Board and the Curriculum Development Division.

(d) 1975 Meeting of Principals and Heads of Mathematics Departments in the region. Formulation of scheme. Proposal made to SCEB.

1976 Trial of scheme alongside Conventional School Certificate. Courses for teachers on mastery and assessment techniques.

1977 Project commenced. Further in-service courses. National in-service course to survey progress in this and parallel mathematics schemes. Publication of brochure for parents and employers.

1978 Continuing in-service training courses, held annually. Evaluation of scheme by SCEB Mathematics Sub-Committee and confirmation of scheme for further three years.

(e) The project involves approximately 1,500 pupils in 13 schools. Only one large and one medium-sized school in region are not involved in scheme.

(f) The scheme has been successful in achieving its basic aims. Communication with employers to gain acceptance of scheme has been a problem. Matching mastery levels with norm-referenced grades for the purposes of awarding School Certificate has been a major problem.

An important feature of this project is the continuing emphasis on the training of teachers to handle the new approach to mastery learning and assessment. The project was evaluated after one year's full implementation before continuation was guaranteed.

AGRICULTURE

In response to the demand for relevance a number of countries are continuing to emphasize the place of agriculture in the school curriculum on the grounds that it is into agriculture that most students will go after leaving school. The place of agriculture in school as a vocationally-oriented subject has always proved controversial and its merits doubted. However, the recent trend has been both to retain agriculture or agricultural science as a subject and to approach it also through science, maths and environmental studies. Agriculture syllabuses are being radically revised. In Papua New Guinea there is a major shift from teaching commercial to subsistence farming. In the Tanzanian secondary schools with an agricultural bias (see p), students must study subjects across the curriculum; agriculture, however, constitutes thirteen out of a total fifty-four periods a week and physics, chemistry and biology another ten.

BOTSWANA, LESOTHO AND SWAZILAND

Botswana-Lesotho-Swaziland Agriculture for Junior Certificate

With the introduction of the Diversified Curriculum in the secondary school system in 1970 more and more schools took to teaching agriculture at Junior Certificate level. Even then the success or failure of the programme depended on the interest and initiative of individual teachers.

When the Junior Certificate Examinations Council of Botswana, Lesotho and Swaziland established subject panels in 1972 to review the syllabi, the Ministry of Education asked members of the Botswana Agricultural Teachers' Association (BATA) to form the Panel.

In April 1979 the Regional Panel approved the idea of making practical work account for fifty percent of the final grade in Botswana.

To strike a balance between theory and practical work, practical activities, gardening, poultry raising, tree planting etc. were re-designed and re-emphasized. Diary cards for students, teachers' grading cards and trading record sheets were designed, printed and distributed to schools.

Practical examination techniques were designed and approved by the Regional Panel and the Examinations Council of Botswana, Lesotho and Swaziland.

Teachers' notes on topics like maize growing, ground-nuts, poultry, orchards, small livestock, soils etc. were worked out. The syllabus was re-arranged so that topics came in their logical sequence.

In 1978 the scope of practical activities was expanded to include secondary schools' contests in production, livestock, cereal and legume judgment. An in-service course was held in January 1978, to bring the teachers up to date in practical examination techniques, secondary school contests in production and livestock and crop judgement.

A consultancy in secondary school agriculture which collected information in October 1978 released its report in February 1979. The report strengthened the case for agriculture in the secondary school system of Botswana. It recommended links with primary schools, teacher training colleges, farmers and agri-businesses. It also recommended the amalgamation of practical subjects with agriculture as the base. We have started working on teaching units. A publishing company that has published some Botswana books is interested in helping.

Cambridge School Certificate Level

Realizing that the agricultural syllabus provided by the Cambridge Examination Syndicate was irrelevant to the conditions and needs of the Southern Africa countries, the three sister countries of Botswana, Lesotho and Swaziland also worked out an agricultural syllabus relevant to the needs of countries in Southern Africa in December 1978. The syllabus is such that each country can concentrate on its particular needs while also teaching the broad aspects covering Southern Africa and indeed general agriculture.

Swaziland Modern Agriculture:

The Schools' Agriculture Project was set up with the co-operation of the Agricultural Faculty of the University of Swaziland at Luyengo and the Schools' Agricultural Panel, a consultative body set up to oversee the project. One key participant from the Faculty of Agriculture inspired and co-ordinated the project.

From 1973 a series of booklets and units were produced as cheaply as possible. They were used extensively in schools and evaluated with the co-operation of teachers. The third edition of the units together with teachers' handbooks is now being used. The course has a strong practical bias and is as supportive of teachers' work as possible. Teachers' consultative meetings were called before each new edition of the units was edited. The Schools' Agriculture Panel brought in a wide range of interest and enthusiasm through representatives of the Ministry of Education, the Ministry of Agriculture, the University, a secondary headmaster, a primary headmaster, an agriculture teacher and others.

Further details and comments on the project are given below. The Swaziland project directors state that they would greatly value an exchange of information and a dialogue on school agriculture with other interested countries

Schools' Agriculture Project

OBJECTIVES, have a bearing on the way the materials were written:

- (a) To give students practical training in the skills and techniques of farming.
- (b) To teach agriculture as an applied science, correlating it where appropriate with other subjects.
- (c) To encourage respect for farming as a way of life.

GRADE 6												GRADE 7													
Term 1				Term 2				Term 3				Term 1				Term 2				Term 3					
J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D		
Sow Vegetable Production				Harvest				Sow Crop Production				Harvest				Rear Sell Poultry									
1. Finding out about Nature 2. Vegetable Production				3. Crops in Swaziland				4. Crop Production				1. Crop Harves- ting and Storage 2. Farm Records				3. The Soil 4. Keeping Chickens 5. Cattle in Swaziland									
Agriculture is a subject for the final two years of the primary course																									

FIGURE 6 : THE PRIMARY AGRICULTURE SYLLABUS IN SWAZILAND

(d) To introduce students to farming as a business.

CONTROLLED, by Ministry of Education, through the Senior Inspector for Schools' Agriculture and the Subject Panel.

SPONSORED, in the first instance by charitable bodies. Money was obtained to begin producing units. Later, as the project grew, the books which had been supplied free at the beginning, were sold to students to cover costs. Now the units are produced and sold commercially.

Filmstrips to go with the units, were financed from British aid.

TIME SCALE: 1973-79. New three year phase now starting from 1979

SIZE AND SCALE OF THE PROJECT: Medium, becoming large. At present 42 secondary and 48 primary schools teach agriculture. It is the intention to expand into all schools eventually.

STRENGTHS AND WEAKNESSES: There are plenty of capable and interested people to press ahead with the work entailed, in a diligent and sensible manner. They have tried to produce materials as well suited as possible to the needs of Swazi students. The intention, at least, has always been good.

Speaking with hindsight, one weakness is that there has been no real development from the original work in terms of format and style, merely revision of sections of the text. The units are good in the way they cover a wide range of topics, in presenting quite complex material simply but a "question and answer" technique is employed throughout which may be repetitious and therefore boring. More seriously, there is too much "spoon feeding" and not enough "discovery" in the course. Something on the basis of Nuffield Science is called for, with well structured assignments, stage-managed by the teacher using a good handbook, but still with an emphasis on "lets find out".

We have found that poorer teachers use the books badly, as a crutch for their own support, making the children read and learn by rote what is written there. The books rather lend themselves to this treatment, unfortunately.

For all their faults they have done a very effective job over the years.

Lastly, we have been remiss in not taking the initiative in co-operating with the Curriculum Unit. This was largely an historical accident, in that we had produced materials before the CU was effectively

	FORM 1									FORM 2									FORM 3																	
	Term 1			Term 2			Term 3			Term 1			Term 2			Term 3			Term 1			Term 2			Term 3											
	J	F	M	A	M	J	A	S	O	N	D	J	F	M	A	M	J	A	S	O	N	D	J	F	M	A	M	J	A	S	O	N	D			
Vegetables	Sow			Harvest																																
Crops																Sow			Harvest																	
Animal Husbandry										P O U Layers and Broilers			L T R Y			R A B S																				
Classwork (Units)	1. Plants and Man			3. Farm Records			5. Soil and Conservation			7. Crops in Swaziland			9. Pasture Management			11. Plant Growth and Environment			14. Animal Husbandry			17. Farm Tools and Machinery			18. Development Agencies			Revision								
	2. Vegetable Production			4. Cattle in Swaziland			6. Forestry			8. Poultry Production			10. Farm Business			12. Crop Production			15. Crop Harvesting and Storage			16. Nutrition														
Practical	Award Marks e.g. Layout of Plots Careful Sowing and Spacing .Thinning and Weeding									Assess Work on Poultry			Assess Crop Plots			Assess Work on Rabbits																				
Assessment Theory	Test after Each Unit			School Exam			Test after each Unit			Mock Junior Certificate			Revision			Certificate Exam																				

FIGURE 7 : SWAZILAND'S MODERN AGRICULTURE SYLLABUS - SUMMARY CHART

established. The time has clearly come for close co-operation.

FIJI

Modern Studies

Fiji's Modern Studies exemplifies concern with relevance in agriculture. The project was started in 1973 and is still at the trial stage. A number of schools are added each year. There are now forty-eight trial schools scattered all over Fiji, in urban as well as rural areas. By 1980 it is expected that all secondary schools will be able to run this programme.

Aims and Objectives:

The main purpose of Modern Studies is to make secondary education more relevant to the future lives of most children. It is a new approach to make life more meaningful.

The course consists of two strands:

- (a) Basic Topics: This aims to introduce students to certain basic economic and commercial concepts and skills that have application in economic development. The criterion of greatest importance in selecting basic topics is their universality in economic life.
- (b) Projects: The principal aim here is to provide opportunity for students to study and participate in projects of particular relevance to their environment. It also aims to re-inforce in a practical way the work done in Basic Topics and also to demonstrate how basic biological and other scientific ideas can be applied to improve plant and animal production.

In Form Three a small project - "The Living Soil" - is studied. It aims to give students an appreciation of the importance of soil for food production.

In Form Four each school selects one project for study. There are five projects:

- (a) Growing Meat Chickens.
- (b) Growing Vegetables for Profit.
- (c) Growing Dalo for Profit.
- (d) The Coconut.
- (e) Profit in Plant Nurseries.

All these are rural-orientated but can be easily adapted for urban situations, as has been done at Dudley and Tilak High Schools.

TECHNOLOGY

Manpower needs are reflected in the emphasis on technologically-based technical and "practical" subjects in the secondary curriculum. Tanzania has schools "biased" strongly towards technical subjects. Sri Lanka makes the study of a technical subject compulsory at lower secondary level.

SINGAPORE

Singapore reports:

Technical education and industrial training have been greatly expanded to meet the manpower needs of the fast developing industrial sector. Despite the stress on the teaching of mathematics, science and technical subjects introduced in 1959 preference for an academic education and reluctance to train for blue collar jobs have resulted in an inadequate number of operatives, craftsmen and technicians. Consequently the Government introduced in 1969 a new common curriculum for the first two years of secondary education. More than four times the number of students will receive technical education beyond the first two years.

However, metalwork and woodwork (for boys only) is normally outside school hours. Mathematics, general science and physics, physical science or engineering science are compulsory examination subjects. Eight out of nine elective examination subjects are technically biased. In the non-technical stream one science or health science or home economics are the technically-based compulsory examination subjects. Among elective subjects in the non-technical stream basic sciences and mathematics are offered. Figures 5, 6, and 7 indicate the allocations for technical subjects.

NIGERIA

Technology for Secondary Schools

The Nigerian Federal Ministry is also keenly aware of manpower needs for its expanding industrial base. In collaboration with the Ogun State Ministry of Education it sponsors a project managed by the Comparative Education Study and Adaptation Centre of the University of Lagos (CESAC). CESAC pilot-tested a project Technology for Secondary Schools between 1967 and 1973 and is now expanding it. The project objectives are:

- (a) To provide technological literacy to all pupils at the lower forms of secondary schools.
- (b) To provide skills to start a life of work.
- (c) To provide orientation for higher technological studies.

The project is proving worthwhile in terms of its first objective but is hampered by:

The capital costs for workshops, equipment and lack of teachers. (It) requires careful planning to synchronize needs and their provision.

FIGURE 8 : THE COMMON SECONDARY I AND II CURRICULUM
SINGAPORE

	No. of Hours per Week*		
	Boys	Girls	
		Taking Technical Subjects	Not Taking Technical Subjects
First Language and Literature	5	5	5
Second Language	3¼	3¼	3¼
National Language	1¼	—	1¼
Mathematics	3 ¹ / ₁₂	3 ¹ / ₁₂	3 ¹ / ₁₂
General Science	3¼	3¼	3¼
Physical Education	1¼	1¼	1¼
Civics	⅔	⅔	⅔
Assembly	⅔	⅔	⅔
History)) Geography)	2½	2½	2½
Home Economics	—	1¼	**3
Art and Crafts	1¼	1¼	1¼
Music/Singing	7/12	7/12	7/12
Technical Drawing	1¼	1¼	*** (1¼)
Metalwork)) Woodwork)) Basic Electricity)	**3	**3	—
TOTAL	28	28	28

* Minor adjustments are made by schools where necessary

** Normally outside school hours

*** The principal has the discretion to allocate the time to history and geography or to any other subject other than general science and home economics

FIGURE 9 : THE REVISED SECONDARY III AND IV CURRICULUM

TECHNICAL STREAM - SINGAPORE

Subjects	Periods* per Week	Hours per Week
A. Compulsory examination subjects 1. First Language 2. Second Language 3. Technical Drawing 4. Elementary Mathematics 5. Physics or Physical Science or Engineering Science	26	16½
B. Compulsory non-examination subjects 1. Civics/Current Affairs 2. Physical Education 3. Assembly Talks 4. Musical Appreciation/Singing	2) 2) 1) 1)	4¾
C. Elective examination subjects 1. Additional Mathematics 2. Physical Science ** 3. Engineering Science 4. Physics 5. Chemistry 6. Woodwork*** 7. Metalwork*** 8. Electricity and Electro- nics*** 9. Literature/History/Geography	9	6
TOTAL	41	26

* A period will last 35 or 40 minutes

** C2 may not be taken with C4 or C5

*** One only of C6, C7 and C8 must be taken

FIGURE 10 : THE REVISED SECONDARY III AND IV CURRICULUM

NON-TECHNICAL STREAM - SINGAPORE

Subjects	Periods per Week	Hours per Week
A. Compulsory examination subjects 1. First Language 2. Second Language 3. Literature or History or Geography 4. A Science subject or Health Science or Home Economics 5. Elementary Mathematics*	26	16¼
B. Compulsory non-examination subjects 1. Civics/Current Affairs 2. Physical Education 3. Assembly Talks 4. Musical Appreciation/Singing	2) 2) 1) 1)	3¾
C. Elective examination subjects** 1. Literature 2. Geography 3. History 4. Bible Knowledge*** 5. Islamic Religious Knowledge 6. Third Language 7. Additional Mathematics 8. General Science" 9. Physical Science"" 10. Physics 11. Chemistry 12. Biology 13. Art and Crafts 14. Music 15. Needlework and Dressmaking 16. Cookery 17. General Housecraft 18. Health Science 19. Commercial Studies """" 20. Commerce 21. Principles of Accounts	9	6
TOTAL	41	26

* Elementary mathematics is optional for students taking a total of 6 examination subjects

** Special approval is required for 3 electives. Furthermore, not more than 2 science subjects (including A4) are to be taken

*** C4 may not be taken with C5

" C8 may not be taken with C9

"" C9 may not be taken with C8 or C10 or C11

"""" C19 may not be taken with C20

FIJI

The Industrial Arts Programme

Fiji's course in Industrial Arts is an approach which aims to provide a broad and relevant curriculum through the inclusion of a wide range of specialist topics. These are technical drawing, descriptive geometry, art and metalwork, machinery and industrial process, sheet metal fabrication, electro-electronics, fitting and machinery, power mechanics, plastics, lipidary, home maintenance, boat building, ceramics, foundry and forge, welding, engineering mechanics, material science, history of technology, leather work, indigenous craft, graphic arts, photography, building construction, cabinet making and wood carving. Currently the programme has reached form two in its national implementation after extensive trials. It is expected to reach a national scale by 1981.

POPULATION EDUCATION

BANGLADESH

The population Education Programme in Bangladesh is closely related to the needs of a predominantly rural country most of the population of which works on the land in subsistence agriculture. With a very high rate of population growth and a very youthful population, Bangladesh has a wide ranging family planning programme. As a contribution to this the Population Education Programme was begun in 1976 with the purpose of preparing population education material and teachers' guides for all schools and for training the teachers. Once the programme is completed, fifty-eight thousand teachers and educational administrators will be involved in the programme from Class Four of primary school and throughout the secondary level. Population education is being introduced into other subject areas and by 1980 will be taught from classes four to six.

WORLD OF WORK

Emphasis on science, maths, agriculture and technology is part of the pervasive efforts of Commonwealth countries to adapt school curricula to prepare students for productive work; work in a job-scarce world which may not necessarily be wage employment. As we have seen, some countries are making great efforts to encourage student participation in pre-vocational and vocational subjects. Many of the case-studies above are of course relevant to the world of work but they are essentially school-based and do not necessarily involve the students in contact with actual work experience. Unless a number of countries have failed to comment on such schemes there appears to be a lack of projects of this latter sort. If this is so, it may reflect the obvious difficulties inherent in organizing and running them, or other factors which need investigation.

ST LUCIA

Home Economics and Craft Teachers' Course in Project Preparation and Management

Objectives:

It is expected that, through the training, teachers will be competent to undertake projects in schools and expose pupils to the relevant features of economic life in general and project undertaking in particular. As a result of these studies, therefore, the teachers are expected to develop awareness of:

- (a) A clearer link between education and economic life.
- (b) The potential roles of Home Economics and Handicraft towards the manufacturing of primary products.
- (c) The general, as well as the specific nature and demand of manufacturing and commercial life.
- (d) The role of the community in curriculum development and employment possibilities.

The course incorporates lectures and seminar work at the technical Teacher Training College, attachments with four separate manufacturing enterprises, and the writing of course papers at local bases, the Junior Secondary Schools.

The course is controlled by a Co-ordinator with the support of the Planning Unit of the Ministry of Education.

Teacher training is sponsored by the Ministry of Education in three stages:

First Stage: In-school preparation of students sponsored by the Ministry of Education.

Second Stage: A Work/Study Phase, to be sponsored by the Ministries of Community Development and Labour.

Third Stage: The full Production Phase, to be sponsored by Ministries of Agriculture and Trade.

Time Scale: Project First Round

- (a) Teacher Training - 1979-80.
- (b) School Project Implementation Phase - 1980-81.
- (c) Work/Study Phase - 1981-82.
- (d) Full Project Implementation Phase - 1982-83
- (e) Final round ends - 1989-90

Size and Scale of Project:

Growing from small to large, First round - 180 students, Last round - 5,188 students.

This is one of the few schemes in operation which involves work experience. (Grenada is currently planning a work/study scheme but details are not yet available). The St Lucia scheme is noteworthy for a number of features. First, its emphasis on project preparation and management training for teachers as a priority, in a curriculum which demands a new role for the teachers; secondly, the sharing of responsibility between three ministries; thirdly, the implicit concern it may generate for the training of girls.

SRI LANKA

Field Work Centres

Objectives:

These centres are being organized to reinforce the objectives of secondary level education, through out-of-school, non-formal education, by-passing the constraints in the formal system like curriculum, examination requirements, timetables and certification.

Each centre is developed on different lines and they are primarily designed for up-dating and re-training youth for community leadership.

Location

- A. Thondaimannar Field Work Centre - Northern Region, mainly rural but includes an urban sector.
- B. Kegalla Field Work Centre - Kegalla District in the Central Province situated in a rain forest area and mainly directed towards the problem of conservation.
- C. Horana Field Work Centre - Kalutara District in the Western Province, situated in the wet zone,

deals with the problems in a rural environment.

Centre A, is controlled by a non-government agency supported by the Curriculum Development Centre (CDC) and the Regional Education Department.

Centre B is controlled by the CDC.

Centre C is controlled by the Regional Education Department supported by the CDC.

Centres A and C are sponsored by the respective Regional Education Departments.

Centre B is sponsored by the CDC.

Centre A started in 1968 and is continuing.

Centre B started in 1976 and is continuing.

Centre C started in 1979 and is continuing.

All the projects are small scale ones.

The Thondaimannar Centre has been able to develop a variety of programmes for implementation at the regional and national level and also establish international links. The other Centres are still in the process of development.

The Sri Lanka project is exceptional in that it is centrally concerned with out-of-school youth. As we have seen, Sri Lanka places great emphasis in school education on;

imparting knowledge and skill that would equip and facilitate a young person to participate in socio-economic activities.

as well as;

facilitating the fullest growth and development of a student's personality.

In a context where one quarter of the labour force was unemployed in 1977 the continuing education and training of young secondary school leavers, who form a high proportion of the population, is essential if their talents are not to be wasted.

The teaching of vocational/technical subjects at an advanced level of sophistication to school leavers is one of the main programmes of non-formal education and this is proliferating fast ... they are becoming very popular with the youth ... The instructors for these programmes are drawn from the community.
(Ministry of Education, Sri Lanka, Country Report, for 4th Regional Conference of Ministers of Education and those responsible for Economic Planning in Asia and Oceania, organized by UNESCO with the co-operation of ESCAP, Colombo 24 July - 1 August 1978).

Work Experience

Throughout the 1970's in England and Wales there has been growing recognition by schools and industry of the importance of work-related studies for the secondary schools. The factors behind this are the increasing economic difficulties, the low productivity of industry, structural unemployment which badly affects school leavers and severe shortages of scientific and technological manpower.

(a) Local Initiative

After the school leaving age was raised to sixteen, the Education (Work Experience) Act 1973 gave positive direction to schools to involve their students in the final year of compulsory schooling in work experience. Following the national debate on education in 1976 the Department of Education and Science (DES) stressed in a consultative Green Paper, Education in Schools, (HMSO, July 1977, p. 34-35) that "the key to better understanding (between schools and industry) lies above all with local initiative." It went on to suggest possibilities:

- (i) People with experience in management and trades unions can be appointed as governors of schools.
- (ii) Industry and commerce should be involved in the curriculum planning process at national and local level
- (iii) Employers and trade unions ... can make significant contributions to careers education and to improving understanding of productive industry by offering opportunities for work experience and work observation. Every effort should be made to make full use of such activities and relate them properly to school programmes.
- (iv) Employers can offer serving and potential teachers opportunities to gain experience of working in industry. They can also foster direct contacts between their own staffs and teachers in local schools, and those in education should encourage employers to participate in this way.
- (v) These contacts should be planned in particular to widen the career horizons of women.
- (vi) For pupils continuing their education liaison between schools and universities and polytechnics can help to develop subject interest and open possibilities for further study. This is especially relevant in engineering which, while it is not taught in schools, is obviously of industrial and national importance
- (vii) Close liaison between schools and colleges of further education is valuable

(viii) Pupils should have the opportunity ...
of taking part in linked courses

Young people need ... a basic understanding of the
economy ... especially manufacturing industry

It is for local education authorities, schools and
industry to get together and decide which proposals suit
them best: This is an area where no amount of central
direction can take the place of local initiatives.

In November 1977 the DES issued a circular, Local Education Authority Arrangements for the School Curriculum (Circular 14/77 DES and Circular 185/77 Welsh Office) which asked all LEA's to carry out a review of curricular arrangements with regard, among other things, to preparation for working life. In 1978 the DES reported that a number of LEA's had established links with industry and commerce. The DES suggested that LEA's should consider establishing liaison committees aimed at broadening mutual co-operation between industry and educational institutions.

(b) Research into Work Experience

In January 1979 the DES issued a list of current educational research projects which it is supporting, some jointly with the European Economic Community. A fair number of these are concerned with the transition from school to work. The DES does not conduct these projects itself but invites institutions and individuals to apply for sponsorship of policy-related research. Some of these are:

(i) School-Based Project: Transition from School to Working Life

An examination of the problems of the lowest forty percent of the ability range during the last two years of compulsory schooling and in the first year out of school.

(ii) Transition from School to Working Life: Bridging Programme

To improve co-operative educational provision by the Inner London Education Authority (ILEA) colleges and schools for under-achieving fifteen to nineteen year olds.

(iii) Development of a Job-Knowledge Index

To assess the feasibility and evaluation of professional and technician level occupational group indices. To complete as many indices as will be needed to test their feasibility and usefulness to practitioners.

(iv) Special Needs of West Indian and Asian Young People

To develop a one-year programme to meet the special needs of West Indian and Asian young people who are unemployed or leaving school.

(v) Community-Approach to the Transition of Young People from School to Work

To facilitate and monitor the use by schools of community resources applicable to students' needs in coping with their future transitions and to gather information on how they use such provisions at various transitional stages.

(vi) Individual, Family and School Influences on the First Year of Employment

A longitudinal study relating data on employment with family characteristics, scholastic attainment, behaviour at school and characteristics of schools attended.

England and Wales share with a number of other countries a concern not only with the transition from school to work but also with curricula throughout the school which increase students' knowledge about possible careers open to them.

CANADA

Careers Education: Manitoba

In Manitoba an administrative structure will be established by the Department of Education in the near future to co-ordinate, develop and articulate a comprehensive programme on career development from kindergarten to grade 12. The prime purposes of such a structure will be:

- (a) Close co-operation between educators and labour and industry to keep abreast of up-to-date information and the promotion of federal-provincial co-operation.
- (b) An increase of linkages between school and the world of work and an involvement of outside expertise as learning resources for students.
- (c) The improvement of communication between all agencies and consequent dissemination of information, including research information to schools.

Important components of this comprehensive programme will include:

- (a) The development of a "scope and sequence" chart which outlines which career development tasks/needs are appropriate, at which grade levels through the school system.
- (b) The integration of occupational awareness, exposure, and experience into all appropriate grades, making use of volunteer or work education programmes.
- (c) The development and provision of alternative opportunities; including training, work education, and individualized curricula, for all students.

Some of the questions arising from the experience of countries in terms of the relationship of secondary schools with the world of work are:

- (a) What basic pre-vocational knowledge and skills will be useful to the student and what ones are most appropriately learned in school?
- (b) How are these best taught?
- (c) How can positive attitudes be created towards manual, rural blue-collar and technological work?
- (d) How can the students of below average ability be helped to cope with the world of work and to make the most of the opportunities open to them?
- (e) How may all students be made aware about the real range of opportunities open to them and be helped to make sensible choices?
- (f) How may employers, employees and the community become aware of the help which schools and industry can give each other and how can schools involve them in the education of school leavers?

SCHOOL AND COMMUNITY

While no country would claim to have solved the problems of the relationship between schooling and the world of work there is concern about it and a consensus that a closer relationship between schools and industry/agriculture is important. In contrast, where the relationship between the school and community is concerned, there is considerable difference of opinion about the wisdom of closer co-operation. In many countries official policy is to encourage school community links but it is evident from the paucity of projects in this field that this is not easy. Other countries maintain a general policy of keeping the school and the community at some distance from each other.

There is moreover, some diversity in the interpretation of the concept of the link between school and community. Pressures for efficiency, accountability and relevance are all themes which recur in discussions of the issue. The community school can mean that the students and teachers should serve and encourage the local community through productive work. Productive work in the community may be seen as a way of involving school leavers in (rural) communities and preparing them for a useful life in the area. The multiple use of a school's facilities by the community is a way of achieving most-saving economies of scale. Community management of schools increases the school's accountability. Lastly, a school closely linked to the community in terms of its management and curriculum is more likely to meet the demands for relevance.

SRI LANKA

Sri Lanka is officially committed to the spirit of community involvement in schooling. Members of the community participate in teaching, particularly in technical and vocational fields. Both urban and rural communities sometimes contribute land and buildings for their children's education.

Such support is however evident more in schools already considered as favoured.

Sri Lanka expects that the decentralization of education under the scheme for the institution of District Ministers, will lead to greater support from the people.

No special incentives appear to be necessary for the most part to involve people in education or to mobilize their resources. What appears to be wanting is the capacity of the system and the capacity of officialdom to respond adequately.

TANZANIA

In Tanzania, in accordance with the spirit of Education for Self Reliance, schooling at the primary level is run by and for the local community. Schools take a pride in maintaining themselves (apart from teachers' salaries) by productive labour and every student has to do some productive work as part of his training. In most schools three hours a week are devoted to practical work. The concept of the community school has not till now been adapted to the secondary school although the idea that the students should serve the community in the wider sense permeates the educational system. Nevertheless, the fact that community schools are easier to establish and to conceptualize at the primary level is a reflection of the fact that secondary schools are everywhere expected to prepare students for life at the national level. Secondary schools, moreover, often serve a wide catchment area which serves many "communities".

Secondary School Community Education Project

Between 1965 and 1975 secondary education in Papua New Guinea has been developed almost from scratch. This has meant a four-fold increase in enrolment. The provincial high schools cover four years of secondary education in two cycles. In Grades Seven and Eight students are intended to acquire positive attitudes towards agriculture, manual work and life in a rural setting and preparation for active participation in rural development. In 1979 five schools have become part of the Secondary School Community Education Project (SSCEP). In the selected schools students will continue into grades nine and ten. Practical courses will be added to these grades. Project documents from a Curriculum Unit seminar in July 1979 are quoted fairly fully. The reasons for the project are outlined thus:

Why SSCEP?

- (a) Declining employment opportunities coupled with expanding secondary system.
- (b) Problems experienced by school leavers in applying classroom learnings to village life.
- (c) Social adjustment problems of "drop-outs".
- (d) Growing dissatisfaction with system as voiced by community leaders, politicians and teachers.
- (e) Aims set by National Government specify more direct relationship between school learnings and community application/development.
- (f) Present "elitist" system emphasizing "academic white collar" orientation versus felt need for "home grown" system respecting Melanesian egalitarianism and development relevance.

The Aims of the Project:

- (a) To produce graduates who are aware of the relevance and usefulness of subject studies in solving personal and community development problems after leaving school.
- (b) To produce graduates who are less estranged from their home community than at present.
- (c) To produce graduates with basic technical skills appropriate to the needs and resources of their home community.
- (d) To produce graduates with attitudes and skills more closely in harmony with the Government's stated objectives for social and economic development,

especially in rural areas.

(e) To better prepare students who are unable to secure further training or salaried employment for return as a useful citizen to his rural home.

(f) To at least maintain the intellectual achievement levels of students.

What SSCEP does not attempt

(a) To change present syllabi.

(b) To force students to return home to rural community.

(c) To change student attitudes towards the "carrot" of urban employment.

(d) To produce experts in any practical or technical field.

(e) To prevent students from entering higher level studies.

(f) To produce graduates who will immediately become successful entrepreneurs.

(g) To produce graduates who will immediately assume leadership roles in the rural community.

The heart of the scheme is the idea of the core project through which:

(a) Intellectual skills from existing syllabuses can be taught in practical situations without causing a decline in the learning of those skills.

(b) Topics and skills in the existing syllabuses can in many instances be more closely related even in the classroom situation to the student's life and needs.

The core projects are designed with four main purposes in mind.

These are:

(a) To provide a vehicle for developing intellectual and practical skills simultaneously.

(b) To demonstrate to students that "classroom intellectual skills" are in fact relevant to practical situations and therefore to their lives in their communities.

(c) To serve as a structured means of providing concrete examples for use in the classroom teaching of syllabus topics and skills.

- (d) To constitute a "core" which will serve as a basis for organizing and sequencing skills and topics in the core subjects.

Several core projects are being selected by individual schools according to these criteria:

- (a) Relevance to student needs.
- (b) Relevance to community needs.
- (c) Availability of land, money and materials.
- (d) Availability of technical and managerial expertise.
- (e) Suitability as a means of developing a wide range of intellectual skills which reinforce the existing curriculum.

Planning the core projects as controlled learning experiences for students follows the same basic principles as the curriculum development process:

- (a) Precise identification of desired outcomes (behaviours) in terms of intellectual skills, project technical skills, knowledge items, attitudes and problem-solving skills.
- (b) Careful planning of sequenced learning experiences to be undergone by the students in order to develop the desired behaviours.
- (c) Design and application of appropriate assessment devices in the various areas of desired outcome to ascertain extent of student achievement and therefore the suitability of the planned learning experiences.

The organization for planning the core projects is as follows:

- (a) Detailed planning guidelines are provided by headquarters staff.
- (b) Headquarters staff monitor all project planning.
- (c) School co-ordinators supervise project planning in each school to ensure balance and to avoid too much duplication of emphasis.
- (d) SSCEP project teachers (usually) in charge of planning individual projects.
- (e) Groups of teachers representing the four core subjects plan the project's learning experiences and select syllabus skills under the guidance of the project leader and in accordance with general project development guidelines.

The basic approach to teaching within the project framework is: Involve students actively in all phases of the project from planning through implementation to analysis by posing issues and developing problem-solving abilities do not merely disseminate information and use students as project labour.

Timetabling and staffing:

(a) Yearly: Core projects vary in length from a few weeks to an entire year, and more than one core project may be in operation at the same time. The actual timing is less important than having a finished plan which can therefore serve as a basis for curriculum planning.

(b) Weekly: Approximately 12 periods of project time has been made available in the SSCEP schools by re-arranging periods from agriculture, practical skills and the core subjects. It is important to note that reduced core subject class time does not mean reduced time for covering topics and skills since the time has been merely allocated to the core projects for the same usage; i.e. basic skill development.

(c) Staffing: Core project planning involves groups of teachers from various subject areas. The actual implementation and teaching of the projects will be done by the SSCEP project teachers, or perhaps in some cases by regular teachers with project skills whose regular subject-teaching load will be reduced.

Schools have selected projects and have begun their project planning. The initial steps (selection, logistics analysis, suitability for various criteria) were conducted during the one-week SSCEP workshop. The details of planning are underway but will not be completed until the end of fourth term at the earliest.

While the concept of the core projects is clear and while the steps of core project planning are clear, there remain numerous constraints which will have to be resolved in practice ... but such is the nature of a developmental project:

(a) Difficulty of task: Teachers are often accustomed to being involved in projects, but planning them as structured and carefully developed learning experiences for students is a novel approach. It is a difficult and demanding task to carry out. Even with intensive guidance, teachers will encounter problems ... but the SSCEP headquarters team are operating on the assumption that for the core projects to be successfully implemented and developed in a school, the staff of the school have to be intimately involved in the planning.

(b) Time available: Difficulty aside, the time for the task has to come from somewhere. The normal school requirements, not to mention the demands of SSCEP in other areas, compete with project planning time. The pace of

planning will undoubtedly be slow and the product will very likely need considerable improvement. However, it is considered essential to pay the price of slow development for the sake of increased teacher planning skills.

Long-term implications

The Education Department has not yet determined what its policy will be on the dissemination of SSCEP. Such determination is, of course, premature until more is known about the success of the present strategies in terms of achieving SSCEP objectives.

Whatever the policy may be, the present approach of SSCEP is heavily based on intensive in-service work with teachers in SSCEP schools. There is no viable alternative. If a school is to plan its curriculum around preparing its students for life in the surrounding area, the curriculum must to a large extent reflect community conditions and must therefore be tailor-made for the school. Furthermore, the types of educational objectives which SSCEP stresses (problem-solving, application of knowledge, etc) require a special kind of teaching. These objectives cannot be achieved without training teachers in appropriate teaching styles.

The consequence is that SSCEP is likely to succeed only in a situation where large amounts of in-service support and curriculum advice are available. This means money. And money for implementing SSCEP in a large number of schools may not be available ... however successful the pilot schools may have been. The pilot project will result in a "stream-lined" set of strategies which will no doubt lessen the degree of intensity required in further implementation in the future. However, further implementation in great depth may be restricted for financial reasons.

CITIZENSHIP

A theme closely related to the external efficiency of the school system is the need for schools to foster national integration and civic virtues. As we have seen a number of countries have re-designed their history, geography and social studies syllabuses in conformity with national goals.

NIGERIA

Social Studies

The Nigerian Federal Ministry of Education in co-operation with CESAC has been piloting a Social Studies Curriculum for secondary schools. It is a large scale project which is thought to have high potential. Its objectives are:

- (a) To develop a positive sense of co-operative, social and moral responsibility.
- (b) To promote national identity and integration within Nigeria's historical origins and inter-related cultures.
- (c) To foster a basic understanding of the nation's developmental process through the study of the physical environment, social and political institutions as well as the national economy and how it is related to other economies.

At this early stage the scheme suffers from a lack of trained teachers but efforts are underway to remedy this.

TONGA

Social Science

Tonga participated along with other South Pacific countries in the UNDP/UNESCO Secondary School Curriculum Project which ended in 1975. Its aim was to provide a basic four-year course in the whole curriculum. The Social Science materials which had been developed up to Forms Two and Three were not wholly acceptable in Tonga. However, the training offered by the project,

... gave many countries, of which Tonga is one, confidence in their teachers' abilities to develop their own curricula tailored to their own needs.

Tonga is currently re-developing its own social science curriculum through Forms One to Four. In Tonga, as in Nigeria, the problems of the teacher in adapting to new courses are readily appreciated:

The geography teacher now finds he has to understand the fundamental concepts from other social science disciplines such as sociology, anthropology, economics and politics. (From Curriculum Development Officer, Curriculum Development in Tonga then and now, Appendix F to Questionnaire).

MALAYSIA

New History and Civics

Malaysia has a programme of teacher preparation to accompany the introduction of its new history and civics curricula into the schools.

To prepare teachers towards the implementation of these curricula, in-service courses are held at both national and state/district levels. At the national level, teachers/key personnel are trained by officers of the project with the help of other divisions of the Ministry of Education and the Curriculum Development Centre. These key personnel in turn will train teachers at the state/district level. The duration of these in-service courses is between twenty-five and thirty hours. Prior to implementation pilot studies are also carried out in some schools. These are to find out areas of difficulties and the needs of teachers. Support materials in the form of teachers' handbooks and teachers' resource books are also undertaken to help teachers implement the new syllabus.

The history syllabus introduced in form one and progressively to Form Three by 1980, is a compulsory subject in the Lower Certificate of Education. Its objectives are:

- (a) To create a national consciousness and identity through the history of Malaysia.
- (b) To develop a sense of belonging to society and the nation as a single entity.
- (c) To create a collective historical memory as a means towards national consciousness among the people of Malaysia.
- (d) To cultivate international understanding.
- (e) To arouse interest in the learning of history.
- (f) To evoke and develop critical thinking.

In 1975 Malaysia introduced a non-examinable but compulsory civics syllabus. This was to be implemented up to Forms Four and Five by 1979. The objectives of the civics syllabus emphasize the determination of the Malaysian government to gear the education system towards fostering the goals of national unity made explicit in its national ideology. Its objectives are:

- (a) To transmit information/knowledge concerning a multi-racial nation and society.
- (b) To cultivate desired and positive attitudes of a responsible citizen.
- (c) To develop favourable behaviour in line with the aspirations and principles of the national ideology.

AUSTRALIA

Social Studies: Western Australia

In 1975 Western Australia's Social Studies Syllabus Committee focused on:

- (a) The identification and sequencing of the skills and concepts fundamental to social studies.
- (b) Seeking a clear articulation between primary and secondary courses to ensure that there were no unnecessary over-laps in content and that progress from year to year was both rational and developmental.

One of the difficulties that has emerged is the problem of agreement as to what constitutes an essential core of social studies knowledge. Opinions cover a broad continuum from the impossibility of identifying an essential core knowledge, to a preparedness to name specific facts seen as essential. Similarly, the identification and method of incorporation of skills into the content has presented difficulties.

Paralleling these debates is the issue of the values inherent in social knowledge. Conscious attempts have been made to consider the types of values contained in the syllabus content and several differences of opinion have emerged as to how these can best be handled.

Since the initial meetings in 1975, the syllabus has undergone a series of stages involving writing, rewriting, controlled exposure and response from selected school personnel. From here the projected programme is as follows:

- 1979 Distribution of limited copies of the draft to all schools.
- 1980 Conduct of syllabus trials in a small number of selected schools.
- 1981 Reviews, rewrites, reprints.
- 1982 Full implementation in all state schools.

ENGLAND AND WALES

Political Education

The Programme for Political Education in England and Wales was conceived not necessarily as a distinct subject with a syllabus of its own but as a conceptual contribution to many subjects such as history, geography, economics, English and religious education. The programme was designed to remedy some of the defects of traditional approaches to civics and government courses which emphasize political machinery or political philosophy at the expense of real issues.

The programme was introduced in the context of a society which is increasingly participatory.

The school curriculum would be wise to recognize this and to increase the likelihood of responsible participation by supporting it with knowledge and an informed understanding of the potential, and the limitations, of the contribution of individuals to their own government. (Department of Education and Science, Curriculum 11-16, Working papers by HM Inspectorate: A contribution to current debate, December 1977, p.56)

The content involves three areas, which according to the basic concept of the programme are:

- (a) Understanding of the machinery not only of central and local government but also industrial relations, the education system, and the contribution made by pressure groups.
- (b) Understanding of issues over which people disagree. Disagreement may be over goals, over values or over results.
- (c) Knowledge of the groups who are involved in political decision-making including regional, economic and ethnic differences. Insight into the potential (and) the limitations of political action.

Concepts (are seen as) tools of analysis and a necessary bridge between mere political knowledge and political understanding. Which concepts are present in a syllabus will depend upon objectives and the issues of current importance.

The most important attitude to develop for political competence in a democracy is toleration, not only the acceptance but the welcoming of diversity in society. Another political attitude is an acceptance of compromise and open-mindedness.

In order to develop these attitudes certain skills and abilities are necessary; the ability to find evidence and evaluate it, to identify slanted interpretations and bias and the ability to understand and appreciate the predicaments and points of view of other people.....Reason and logical thinking must be at the heart of political behaviour. (Ibid. pp. 5607)

The Political Education Programme is indicative of an approach, therefore, which emphasizes political competence and understanding in a democratic and pluralistic context.

Special Needs

A significant number of projects are concerned with the capacity of the educational system to enable special categories of students to achieve their potential at school.

GUYANA

Remedial Reading Project

Guyana's expansion of educational opportunity in 1976 has led to concern with the quality of educational provision for students who are failing to achieve literacy. In 1977 the Remedial Reading Project for the Community High School Programme was begun. Its objectives are:

- (a) To produce material for remedial reading in Community High Schools, especially for form one students.
- (b) To "marry" educational theory, curriculum development and remedial education so that on account of the union, the learning/teaching act would be structured.
- (c) To apply the theory of curriculum planning to remedial work in schools.

The project is spread over the rural/urban districts and is sponsored and controlled by the Curriculum Development Centre of the Ministry of Education. In the first phase the project has a time scale of four years from January 1977 to December 1980.

The project, in its first phase is a small one. It is projected that 110 teachers and 3,300 students from each education district in Guyana would be involved by 1980.

Features:

The STAR Reading series is a Reading/Language Arts programme which is being developed. It is intended that adequate scope be given to reading skill development and this will be sequentially documented so as to produce a manual for teachers and reading material for students.

The strength of the project lies in a cluster of principles among which are:

- (a) The materials have been tested and refined in school settings.
- (b) Curriculum workers, teacher-educators, teachers and pupils have been interacting so as to ensure that the results and findings are based on knowledge of subject matter and educational practices.

The weakness of the project can be listed as follows:

- (a) Lack of skilled personnel to monitor the programme.

- (b) Inadequate financial resources to provide enough materials to participants in the project.

ENGLAND

Slow Learners

In England between 1971 and 1974 the Schools Council initiated a project on the curricular need of slow-learning pupils. This group of pupils (the least successful fifteen percent of the school population between the age five and fifteen) are not necessarily identical with students who need help with reading but it soon became apparent that there was a particularly urgent need for a guide concerned with the reading development of students with learning difficulties. The aims of the project were to study good practice in a large number of schools. The project produced a report, (W K Brennan, Reading for Slow Learners: A Curriculum Guide, Schools Council Curriculum Bulletin: 7 Evans Methuen 1978), and a practical teachers' guide as well as many seminars with teachers' groups.

SINGAPORE

Gifted Students

A number of countries are investigating the needs of gifted children and ways of enabling them to reach their full potential, often in the context of mixed ability teaching and the common curriculum. From 1981 Singapore will alter the structure of its courses at secondary level in order to cater for both below average and very able students. There will be a special course of four years for the very able, a normal course of four years for the average and above and an extended secondary course of five years for the below average students.

CANADA

Cultural Minorities

In the Old Commonwealth, projects concerned with the special needs of cultural and ethnic minorities are numerous. In Canada, Nova Scotia initiated a Multi-Cultural Studies Programme in five schools in different parts of the province. The aim of the course is to increase understanding of the cultural traditions represented in Canadian society.

In Manitoba, the English as a Second Language Programme in Winnipeg is intended to ensure that the educational system responds adequately to the linguistic and cultural needs of non-English speaking persons. It is seen as part of the schools overall objectives for language development and is intended to help all students in attaining an acceptable degree of fluency in the use of standard oral and written Canadian English in a milieu that supports cultural diversity.

Manitoba is also running a programme for Native Education. Its objectives are:

To evaluate educational programmes designed for Native children and students in Manitoba, to recommend priorities and policies for the Department related to Indian and Metis education, and to co-ordinate the

planning, development, and implementation of Departmental programmes designed to serve the needs of Native children and students on an on-going basis.

The Native Education programme is designed to make the Manitoba educational system more responsive to the needs of Native children and students. The programme is administered by the Native Education Branch which acts as a liaison among Department branches in matters concerning Native education and also between the Department, other levels of government, and Native communities and organizations; it also assists school divisions/districts in assessing and meeting the educational needs of Native students in terms of individual and community requirements and in developing educational programmes related to Native culture and heritage.

Operating within kindergarten to Grade 12 parameters, the programme emphasizes those aspects of Native education that deal with education for Native people and education about Native people. The concern in the area of education for Native people is to respond to the needs of Native peoples - through consultation with communities, bands, schools, and teachers - by developing comprehensive educational programmes designed to meet these needs more adequately. Education about Native people focuses on programmes for both Native and non-Native students by which, through exposure to North American Native cultures, all students are provided with the opportunity to become more aware of Native cultures.

AUSTRALIA

Girls

In countries where secondary level education is not compulsory the enrolment of girls lags behind that of boys, with one or two exceptional cases. The trend, however, is for girls' participation to increase and to receive official encouragement. But very few reports of special programmes and projects single out girls as a target group. There is, however, one interesting example of an integration approach to the Home Economics curriculum.

Home Economics: Western Australia

School-based initiatives in Western Australia in 1978 led to:

.. the development of Home Economics as a subject in its own right rather than as a series of skills to be imparted to lower school girls. Increasingly schools are attempting to break down the stereotype sex-role images. In this respect many schools actively encourage male students to undertake Home Economics studies. These encouragements have met with varying degrees of success as have similar encouragement of female students to undertake Manual Arts courses traditionally reserved for males.

Standards

A number of countries are concerned about standards of achievement at the secondary level. The trend towards school-based assessment has high-lighted a need for machinery to co-ordinate standards between schools in all areas of the curriculum.

ENGLAND

Assessment of Performance Unit

The Department of Education and Science set up the Assessment of Performance Unit (APU) in a number of subject areas in response to public concern about standards. The APU has the task of promoting the development and use of better forms of assessment of students' achievement, of monitoring standards and identifying under-achievement of students of all levels of ability. The APU has been exploring the application of a wide range of techniques to broad areas of the school curriculum. In some of these areas, mathematics, language and science, the stage has been reached of developing the necessary tests. Monitoring in these areas started with mathematics in 1978. One expectation of this programme is that it will co-ordinate methods of assessment and record-keeping from school to school in the interests of a student population which is very mobile.

CANADA

Measurement and Evaluation: Manitoba

A project in the same vein is the Measurement and Evaluation Project in Manitoba set up:

To develop, disseminate, and interpret for government, the general public, and all Manitoba educators, on an ongoing and cyclical basis, detailed indicators of student achievement at selected grade levels in the core curriculum areas of reading, writing, and mathematics and in additional curriculum areas, designated according to priority and need, and to provide follow-up specialist support to provincial and school/school division personnel to improve student evaluation practices and school programme.

The Measurement and Evaluation Programme is a provincial learning assessment programme that provides for professional educators, various levels of government, and the general public, on-going information on the general level of student achievement and the manner in which educational programmes in Manitoba schools are meeting provincial educational objectives and the needs of students and society. Responsibility for the programme falls to the Measurement and Evaluation Branch, established April 1, 1978, which works with an Advisory Joint Committee on Evaluation (made up of representatives of the Manitoba Teachers' Society, Manitoba Association of School Trustees, Manitoba Association of School Superintendents, Faculties of Education, and Department of Education), prepares and administers via a sampling process student tests in various areas of the school curriculum, and supplies data, recommendations, and support services for programme improvement.

Implementation and Evaluation: Alberta

The Curriculum Policies Board, Alberta, has reviewed, since 1976, the total Alberta School programme and provided criteria on what new curricular proposals should be given priority among the many being made.

The Board's major concern was that all aspects of the implementation of new programmes be thoroughly evaluated. Thus, before a recommendation for programme approval was made, the Board insisted that the programme include the following elements:

- (a) Identification of specific knowledge, skills, values or attitudes at each grade or division level.
- (b) Identification of required and optional sections.
- (c) Relationship among elementary, high and senior high sections of a programme.
- (d) Identification of appropriate student learning resources.
- (e) Provision of implementation activities and resources.
- (f) Provision for the evaluation of the programme.

In addition the Board gave much thought to problems of implementation. Ensuring that school boards have sufficient time to provide teacher in-service training and to acquire the necessary resource materials before the programme became mandatory was a continuing concern. Programmes were recommended for a specific minimum time period. (Report of the Curriculum Policies Board, 1976-78, Alberta, pp. 3-4)

Since 1976 the Board has recommended sixteen new or revised programmes which proved consistent with these criteria.