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RESOURCES FOR EDUCATION AND THEIR COST-EFFECTIVE USE

POSSIBILITIES FOR REDUCING COSTS
WITHOUT SACRIFICING THE QUALITY OF EDUCATION

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POSSIBILITIES FOR REDUCING COSTS
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I. INTRODUCTION

1. Three major questions are usually considered in relation to the use of a nation's resources for education:

(a) What resources should be devoted to education as a whole when compared with competing demands, such as infrastructure (e.g. roads, bridges, military establishments), other social services (e.g. health), and extension services (e.g. for farmers and small scale industrialists)?

(b) How should these resources be allocated among the various levels and types of education, including non-formal education?

(c) How best can cost-effectiveness in the use of resources be achieved in any given line of expenditure on education? In other words, how can the quality of education be maintained or improved while the cost per student, or per teacher, is maintained or reduced?

2. This paper focuses on the third of these questions in a search for cost-reducing possibilities that do not entail a sacrifice in educational results. In this search there is much that Commonwealth countries can learn from one another.

3. As a preliminary, the paper explains why and how the need has arisen for measures to be taken to achieve maximum cost-effectiveness in the utilization of resources available for education. This is followed by an outline of some of the methods being adopted in Commonwealth countries in pursuance of this goal. Finally, some conclusions are presented.

II. WHY THE NEED ARISES

Educational Development in Developing Countries

4. In the developing countries the need to ensure optimal utilization of educational resources has not always been as important as it is now. During the colonial period only limited numbers of educated people were required to meet the needs of the administration, and in most colonies only a fraction of the school-age population went to school. Training programmes were easily tailored

to meet such limited needs. For example, in Nigeria a ten-year plan (1) designed to take effect from 1944 proposed to expand the number of elementary school pupils in the country from about 340,000 to about 511,000, and the number of secondary school pupils from about 6,000 to about 11,000. However, before the decade was over, a new constitution had been promulgated, dividing the country into three regions. In one of these - the Western Region - the decision was made to introduce free primary education in 1955, and in that Region alone primary enrolments rose from 456,600 in 1954 to 1,080,300 in 1959 and secondary enrolments from 9,000 to over 22,000 in the same period.(2) It was clear that the public demand for education far outstripped the expectations of the colonial authorities.

5. Following independence this trend of rapid educational expansion took a nation-wide dimension. This was apparent even before the universal primary education scheme (UPE) was launched in 1976 as the following table shows:

Table 1. <u>Enrolment in Primary, Secondary and Teacher Education</u> <u>in Nigeria - 1973 and 1976</u> (3)			
Year	Primary	Secondary	Teacher Training
1973	4,747,000	449,000	47,000
1976	8,260,000	827,000	154,000

6. In India the story is much the same. In the three decades of planned development following 1951 (i.e. four years after independence), the number of educational institutions more than doubled, while the number of teachers and students went up by about four times. Planned expenditure on education rose from Rs. 153 crores in the first plan to Rs. 1,330 crores in the fifth plan (4). Even more spectacular was the expansion that occurred in Zimbabwe on attaining independence in 1980. Before that time only 337 out of every 1,000 black children had primary education. Of these, only 60 went to secondary school, 37 reached Form IV, and less than three reached Form VI. The total primary school enrolment in the year preceding independence was about 820,000. Three years later it exceeded 2 million. Such trends cannot but have repercussions on the economies of Commonwealth countries, as the next section will show.

The Implications of Mass Education

7. The economic implications of mass education for a developing country are illustrated by the example of Nigeria.

8. As we have seen (Table 1), primary school enrolment at the time of the introduction of UPE was over 8 million. By 1980/81 it had reached 14 million. Secondary and tertiary education had

also risen, and, as Table 2 shows, the recurrent expenditure was over six billion naira.

Table 2. Recurrent Expenditure on Education in Nigeria
1980/81 (5)

<u>Primary:</u>	(14 million pupils)	₦1,984 million
<u>Secondary:</u>	(2.4 million students)	₦3,400 million
<u>Tertiary:</u>	(155,450 students)	₦1,011 million
Total		₦6,395 million

9. It was in the euphoria of the oil boom that the expansion began, with the government of the day undertaking not only to make primary education free and universal but to provide libraries, science equipment and materials, and inexpensive textbooks. There were to be craft schools, junior secondary schools, and a technical college for each local government area. Opportunities for self-education would be provided by means of correspondence courses, radio and television lessons, and evening and holiday courses.

10. But the boom did not last. By the end of the 1970s the money-flowing years were coming to an end. In 1980 the income from oil amounted to over US\$ 26 billion. Three years later it was down to half that figure, and Nigeria found itself in grave financial difficulties. In no other sector was the impact felt as deeply as in Education, on which Government had committed itself to giant programmes which it could no longer implement.

11. At the launching of UPE in 1976, 2.9 million children had been enrolled into Class One. In June 1982, on the completion of their six-year course, 1.8 million came out of school, 1.02 million of whom were enrolled three months later into Form One of the newly established junior secondary schools. In compliance with the new National Policy, arrangements had to be made to teach these pupils such pre-vocational subjects as woodwork, metalwork, electronics, mechanics, typewriting and home economics in addition to the core subjects taught in conventional grammar schools. To procure the necessary equipment, some US\$ 127 million was needed, but the country was not in a position to foot the bill and arrangements had to be made to obtain a soft loan to be repaid over a long period.

12. Looking into the future, one can see two other crises looming ahead for the country. In 1985 about 1 million pupils will leave the junior secondary schools. It is expected that about half of them will proceed to senior secondary schools and technical colleges, and a further tenth to teacher-training colleges. In other words, by 1985 provision will be required for the further education of nearly three-quarters of the junior secondary school leavers. Three years later the boys and girls who started the UPE scheme in 1976 will be old enough to seek admission to higher education institutions. If the proportion of primary school entrants who go on to gain admission to universities remains at

3%, and if another 3% go to polytechnics and colleges of education, provision must be made for a total of 260,000 first-year students in September 1988. Indeed, the total enrolments in universities, polytechnics/colleges of technology, and colleges of education may increase to 818,900 by the 1991/92 academic session.

13. There is little likelihood that the economic situation will improve significantly in the next few years. The problem facing Nigeria therefore is how to carry out the planned educational programmes in the face of dwindling financial resources. This is a problem that all Commonwealth developing countries are familiar with in different ways and in varying degrees.

14. In the section that follows, consideration is given to a number of examples which provide some indication of the wide range of cost-effective measures being undertaken in the field of education throughout the Commonwealth. Some are drawn from Nigeria; others from those of the country papers prepared for the Conference which were available when this paper was written. The measures are grouped in four sections: buildings and plant; organisational alternatives; the provision of educational materials; and alternative funding methods. The section concludes with a study of the drop-out problem in Nigerian primary schools and its effect on recurrent expenditure.

III. WAYS OF ACHIEVING IMPROVED COST-EFFECTIVENESS

BUILDINGS AND PLANT

Converting Single-Sex Schools into Co-educational Schools

15. At the time that the educational systems of Commonwealth developing countries were being established it was often the policy to establish separate schools for boys and girls. From the point of view of cost-effectiveness, the difference between mixed schools and single-sex primary schools was not significant. However, it assumed importance for secondary schools where well-equipped science laboratories and libraries had to be provided.

16. In Nigeria, the conversion of long-established single-sex schools into co-educational schools, which began about 30 years ago, was done very slowly in order not to offend parents' susceptibilities. First, girls were admitted into practical laboratory courses in boys' schools. Next, girls were admitted into upper classes of boys' schools as full-time students. Finally, girls were admitted into such schools along with boys from Form One. Even now, however, some secondary schools still remain exclusively for boys and others exclusively for girls. Here is a case where tradition militates against cost-effectiveness. It is interesting to note that in Barbados, the Government has taken the bold step of converting practically all single sex schools into co-educational schools.

Merging Small Schools

17. Merging small schools is another way of effecting economies. Thus, in Nigeria where denominational schools particularly in rural areas often had less than 20 children in a class, the Government passed a law setting up Local Educational Area Authorities which took over these schools and merged them into viable units. Teachers then had full classes to handle and money was saved.

Multi-Purpose Accommodation

18. The joint provision and dual use of educational buildings has achieved valuable cost-effectiveness in Britain where the Department of Education and Science has produced a number of designs for schools which can also be used for community sports and recreational activities. Many universities in Britain and other Commonwealth countries open their residential facilities to conference organisers in the vacations.

New Laboratory Designs

19. Also in Britain a new type of science laboratory design has been developed. It has two features. First, the only permanent elements of the building are the load-bearing external walls. Second, the furniture, fittings, and service arrangements are as far as possible separate from the building shell in which they are accommodated. By these means, the interior lay-out can easily and quickly be altered to meet new needs as they arise. All that has to be done to change the size and lay-out of a laboratory is to move partition walls and re-arrange the benches and storage units.

ORGANISATIONAL ALTERNATIVES

Adopting A Shift System

20. In coping with large school enrolments with limited classroom accommodation, many governments have resorted to the shift system. For example, in Sierra Leone, some schools have two shifts, and some college buildings are used for adult education classes in the afternoons. But the system is not popular. Complaints are made about the misuse of school facilities by the children of the second shift who are regarded as "strangers". More recently, Zambia has adopted the shift system with the Lusaka experiment (1983). Though its cost-effectiveness cannot be conclusively assessed before the end of 1984, preliminary indications appear to be encouraging.

21. In the Bendel State of Nigeria, the system was adopted in 1979 to cope with the doubling of secondary school enrolments. Morning school lasts from 8 a.m. to 1 p.m. and afternoon school from 2 p.m. to 6.30 p.m. There are, however, several drawbacks:

- (a) Teachers are generally opposed to the scheme as it imposes a daily rhythm to which they do not easily adapt.

(b) Classroom furniture deteriorates rapidly.

(c) The school grounds cannot be used for sports and recreational activities in the afternoons owing to the distraction that would be caused to the students of the second shift.

(d) Parents at work cannot be sure that their children are spending their time gainfully during the shift when they are not in the classroom.

(e) A headmaster cannot think of the institution as being his school as he shares its use with another headmaster. This may have an adverse psychological effect on the performance of his duties.

22. Indeed, the value of the shift system became so problematical in Lagos State that it was abandoned, and new schools were built to cope with the 100% transition rate from primary to secondary schools.

Rotating Classes

23. In primary schools as well as in most secondary schools of Nigeria each class is allocated a classroom of its own (the home classroom principle). This arrangement is feasible as long as a substantial part of the educational programme can take place in an ordinary classroom (which is generally the case at primary level). When the need for specialised rooms (laboratories, workshops, art rooms, etc.) increases, however, the arrangement becomes less satisfactory.

24. The alternative to the home classroom is the rotating class system. This takes advantage of the fact that when a group of students goes to a science laboratory, or a technical workshop, or to physical training, it leaves its classroom empty. By constructing the school timetable in such a way that another group of students occupies that classroom at that period, classroom space is used instead of being wasted, and capital costs are reduced. It has been calculated that by using the rotating class system, the average-use-factor can be raised from 30% to 62% in a two-stream junior secondary school and to 72% in a three-stream school. However, it should be noted that as no class under the new system can claim a classroom as its own, student lockers have to be provided for the students' books.

25. It must be pointed out, too, that the change from the home classroom to rotating classes has other important implications. For example, schools need to be specially designed to take advantage of class rotation. Thus, two-stream junior secondary schools in Swaziland consist of four classrooms, a multi-purpose room, a general utility library, a science laboratory, a technical workshop, and a home economics block. Under the old system, six classrooms would have had to be built. Similarly, in Nigeria the number of classrooms for a four-stream junior secondary school can be cut from 12 to seven, giving a saving of some 10% in construction costs.

Space Allocation and Timetabling

26. This procedure, recently devised in Britain, uses a computer programme to carry out simultaneously the dual tasks of setting up a timetable and allocating rooms. Two polytechnics which have adopted the system have been able to increase the frequency of use of their teaching rooms from 64% to 81% and to timetable cross-disciplinary activities in a way that would not have been feasible by traditional methods.

Alternate Year Intake

27. With an area of 102,535 square kilometers and a population in 1981 of 7,059,100, Sokoto State in Nigeria has an average of only 69 people per square kilometer. Large areas of the State are very sparsely populated. Moreover, with an enrolment ratio of only 44% in 1980/81, primary schooling is less developed than in any of the other States of the Federation. For these reasons the education authorities found it difficult to get sufficient intake into most of their primary schools. They have therefore introduced a system by which some schools enrol primary grade one pupils every second year or at even greater intervals. Thus in the 1980/81 school year there were 3,867 primary schools but only 3,364 grade one classes.

28. The statistics for four Local Government Areas given in Annex A demonstrate the effect of the policy of alternate intake. (6) Officials from the State Ministry of Education confirmed that no problems were encountered when parents who wanted to register their children for admission into primary school were told to come again next year.

Alternate Work and Study

29. In Malta, the University Act was amended in 1978 to make it mandatory for students to work and study at alternating periods during their undergraduate years. To operate the new scheme, the University year now starts in mid-February with half of the student intake entering the work phase while the other half goes into the study phase. After 5½ months, the two groups change places. In this way both physical and human resources are utilised to their maximum capacity.

Training Teachers on the Job

30. The introduction of UPE in Nigeria posed a serious problem for teacher training. Because the conventional teacher-training colleges could not cope with the numbers required, the Federal Government established the National Teachers' Institute (NTI) at Kaduna with the specific purpose of providing courses for the bulk of the untrained teachers. In addition, a scheme was planned whereby the NTI, in collaboration with six Institutes of Education attached to some of the country's universities, would train a substantial number of "lead teachers" whose task would be to help untrained teachers after school hours. However, this scheme has yet to be put into practice.

31. Meanwhile, some Institutes of Education in the country are independently organising the up-grading of Grade II teachers who

remain on the job to enable them to qualify for the Grade I Teachers' Certificate. The Institute at Ibadan has conferred this benefit on over 6,000 teachers within the past four academic sessions with a considerable saving of costs, as Table 3 shows. The Institute at Zaria is doing the same on an even larger scale for teachers in the Northern States who cannot be spared from their jobs.

Table 3. Up-grading Grade II Teachers to Grade I by the Institute of Education, University of Ibadan, Nigeria, while on the job

COST BENEFIT ANALYSIS

(a)	Total number trained in 1983/84	= 2,045
(b)	Salaries of the teachers if they had had to be withdrawn from their schools	2,045 x N1,500 = N3,067,500
(c)	Amount charged by the Institute of Education @ N250 per trainee	2,045 x N250 = N 511,250
(d)	Difference between (b) and (c) to reflect the saving to the nation	= N2,556,250

32. In the Bahamas the Government has set up the Mature Teachers Programme to train teachers on the job. Participants are teachers over 30 years of age who, every year for four years, spend part of their summer holidays on a vacation course. This provides them with the opportunity to become trained teachers at a cost substantially less than that of a conventional teacher training college.

33. In order to cater for the explosion of primary school enrolment following independence in 1980, Zimbabwe has embarked on a bold scheme for training up to 3,000 teachers a year on the job. This, the Zimbabwe National Integrated Teachers Education Course (ZINTEC), takes place in three stages. In the first, which lasts for 16 weeks, the teachers attend a residential course at specially created ZINTEC Regional Colleges. This is followed by a period of ten school terms during which they are sent to schools and continue their studies through distance learning with the assistance of tutors. The third is another residential course of 16 weeks, again in the ZINTEC Colleges, at the end of which they sit their qualifying examinations and pass out as fully-trained teachers. The cost-effective value of the ZINTEC programme is that it economises on residential training and puts trainees in the field where shortages exist.

34. Tanzania has evolved a three-year Distance Teacher Training Programme to cope with the problem of training 40,000 teachers for its UPE scheme. Using radio broadcasts, recorded cassettes, correspondence courses and occasional face-to-face tuition, the programme has been found not only to be effective but also to be less costly than traditional teacher training methods.

35. Mention should be made of a unique training course being run at a college in the northern part of Sierra Leone under the sponsorship of UNDP/UNESCO. The course is designed to produce people who are qualified not only as teachers but as Community Social Workers. By preparing them to perform a dual role in the community, Sierra Leone has been able to achieve economies in government spending.

Curriculum Design

36. Curriculum design has been applied to the achievement of cost-effectiveness in the Seychelles by devoting a portion of the day to activities (including reading/writing periods and extra-curricular activities) which are not teacher intensive. By this means the number of formal periods of instruction has been reduced by one per day while maintaining the overall number of hours children attend school, and teacher requirements have been reduced by approximately 14%. A further advantage is that as fewer unqualified teachers have had to be recruited, teaching quality has been raised.

37. Prior to 1982 in Nigeria, secondary schools were of three distinct types: grammar, technical or commercial, with curricula to match. However, with the establishment of the universities, the grammar schools acquired unprecedented prestige, being virtually the only channel through which university admission could be obtained. As a result, between 1960 and 1976 the number of grammar school students rose by 691,000 (i. e. from 135,400 to nearly 827,000) while the number of secondary technical/vocational school students rose by only 22,000 (from 5,000 to 27,000). But as the universities were never able to admit more than 16.5% of the school-leavers in any one year, much of the investment in grammar school education could be termed "anti-cost-effective".

38. Mainly for this reason a new secondary education system was introduced in 1982. It is in two tiers - junior secondary for three years, and senior secondary for three more years - with the curriculum combining elements of grammar, technical and vocational schools. Thus for junior secondary school students there is a core curriculum consisting of mathematics, English, two Nigerian languages, science, social studies, art and music, practical agriculture, religious and moral instruction, and physical education, plus two options from the following pre-vocational subjects: woodwork, metalwork, electronics, mechanics, local crafts, home economics, and business studies. By modifying the secondary school system in this way so as to ensure that students are much better prepared to secure gainful employment than they were before, the cost-effectiveness of their education has markedly improved.

Correspondence Courses for Secondary Education

39. It is usual to associate correspondence courses with adults who are striving to up-grade their education while earning a livelihood. But in Zimbabwe the magnitude of the educational programme launched after attainment of independence in 1980 compelled the Government to extend the services of a correspondence course to secondary school students. In part the scheme is intended to meet the special needs of ex-combatants who were

engaged in the nationalist struggle during the years they should have been in secondary school. In addition, it caters for those primary school leavers who, despite the increased enrolment, are not absorbed into secondary schools. In 1983, over 70,000 students in this category have availed themselves of the advantage of learning by correspondence. A third of each correspondence student's fee is paid by the Government. All in all, the cost to the Government is Z\$150 per student per annum, whereas the cost to Government of maintaining a student in a conventional school is Z\$900. It is the view of the Government of Zimbabwe, however, that the scheme may have to be modified by some form of integration with the conventional secondary education system in order to remove the inferior status which the students undergoing the scheme believe to be attached to it.

THE PROVISION OF EDUCATIONAL MATERIALS

Bulk Purchasing

40. Bermuda has taken advantage of its proximity to the United States to purchase consumable materials and teaching aids in bulk from big commercial houses there. Quotations are sought from about five or six suppliers but when the contract has been awarded to a particular supplier, considerable savings are achieved by buying from one source.

41. Another country to have recorded considerable savings through the bulk purchasing of school supplies is the Bahamas where the Government supplies materials to all Departments and Ministries (including Education) through a central purchasing unit.

42. A cost-effective system similar to bulk purchasing is adopted in Malaysia. When applied to school building, it ensures uniformity and standardisation in quality, and reduces the cost of materials. It also cuts down the number of suppliers the Ministry of Education has to deal with and results in reduced costs.

Low-Cost Teaching Materials and Science Kits

43. Barbados, in collaboration with eight other territories in the Caribbean, has been involved in a scheme sponsored by USAID to provide instructional materials for teachers and students. So as to improve the teaching of science, workshops were organised at which teachers identified the important areas for the various age levels and then proceeded to prepare the required materials. Those produced so far would have cost much more if they had had to be bought on the open market.

44. Another example relating to science comes from Nigeria where the Government has established a Science Equipment Manufacturing Centre which achieves savings by making simple laboratory apparatus for secondary schools instead of importing it. There is also

a National Education Technology Centre which produces low cost materials, broadcasts educational programmes on radio and television, and trains educational broadcasters and visual aid specialists.

45. In order to teach science to the greatest number of students with the least outlay of money, Zimbabwe has evolved the Zim-Sci Project. This enables teaching to be done without a conventional laboratory. Instead, apparatus and chemicals are packed in a portable metal cupboard and sent out to schools. A fully packed cupboard, which costs only Z\$1,500, can be used to perform experiments for a class of 40 pupils and serve as a functional substitute for a laboratory which would cost Z\$60,000 to build and equip. Moreover, national examinations indicate that pupils using Zim-Sci Kits have performed as well as those with access to conventional laboratories.

Sharing Library Resources

46. In its National Policy on Education, the Government of Nigeria undertook to provide junior libraries for primary school children. To implement the spirit of the policy, a pilot scheme for sharing library resources is being carried out at the University of Ibadan. Under this scheme, a Multi-Purpose Media Resource Centre provides library services to a number of institutions clustered in a network around Ibadan. The Centre consists of a number of service divisions. These are:

- (a) A library collection and Book Depot Division responsible for the centralised selection, acquisition, and processing of books for all types of educational institution.
- (b) An Audio-Visual Division containing learning packages suitable for various institutions and the equipment for projecting them.
- (c) A Production Division capable of reproducing books and learning materials and teaching aids.
- (d) A Specimen Collection Centre for both Science and Social Studies.
- (e) A Language Development Centre where manuscripts and supplementary readers in indigenous languages can be obtained.
- (f) A Mobile Library Resource Materials Section for supervising and supplementing the book collection in schools in the local area.
- (g) A Training and Research Division to organise in-service training programmes for teacher librarians and library assistants.

47. In terms of cost-effectiveness, advantages are gained by centralising the acquisition and processing of books. As yet the scheme is being run on an experimental basis, but it is hoped to establish a Centre in each Local Government Area.

ALTERNATIVE FUNDING METHODS

Community Self-Help in the Provision of School Buildings

48. During the era of colonial administration, the construction of school buildings was frequently the responsibility of the local community. Thus, in Nigeria, from the middle of the 19th Century it was customary for the members of a village wishing to have a primary school to erect the building themselves and make the classroom furniture.

49. This custom unfortunately fell into disuse about 30 years ago with the introduction of the first free primary education scheme in the old Western Region when the Government provided all the required school buildings at their expense.

50. Following the introduction of UPE in 1976, the Federal Government undertook to reimburse the money spent by State Governments on school buildings. However, by 1981, the Government was no longer able to continue this procedure, and it set up a Panel to look into alternative sources for financing education. The Panel's report, issued in 1982, said that offers by local communities to provide school buildings and other educational infrastructure should be warmly welcomed. But so urgent has the situation become that the various State Governments no longer wait for offers but actively solicit them from the community, and, in some States, the response has been very encouraging. Elsewhere in the Commonwealth the pattern is similar. Thus, to meet increasing demand for more secondary school places in the Family Islands of the Bahamas, communities are encouraged to assist in the building of schools by means of self-help projects. In Tanzania UPE was made possible by a system in which the Government provided the building materials, the teaching equipment and the teachers, and the people organised themselves into volunteer communities to put up the buildings. In Malaysia a pilot project for classroom construction has cut costs from \$35,000 to \$14,000 per classroom

Funding Policy

51. In New Zealand a fundamental shift in funding policy is underway. It consists of replacing "earmarked grants" tagged to specific purposes by untagged grants which give local authorities much more flexibility over expenditure. Under the former system, apart from living within their grants, there was no onus on controlling authorities to review the effectiveness of their spending decisions. Now, aided by the provision of computerised information on a monthly basis, the authorities are able to analyse and control their expenditure more efficiently. In addition, the

system has been instrumental in bringing about new cost-effective procedures, e.g. holding in-service training courses for teachers on a local basis instead of on a national basis where residential accommodation was required. However, it should be noted that the effectiveness of educational funding is not considered solely in terms of unit costs, and that educational effectiveness is considered as well as cost-effectiveness.

Research

52. When new educational programmes are launched, their cost-effectiveness is often unpredictable. In some cases, research can make a valuable contribution to the planning process. For example, in New Zealand it was found that some 20% of children being taught to read were having difficulty in mastering the Government-supplied Primer. As a result of research a method of overcoming the problem has been devised, and the cost of implementing it on a nation-wide basis calculated. In this way the information needed to make rational policy decisions can be provided.

53. Another instance of the use of research to achieve cost-effectiveness comes from India where the National Council of Education Research and Training conducts a national talent search examination every year to discover young Indians with special abilities. These are given special scholarship awards to enable them to develop their intellectual potential. With the introduction of mass primary and secondary education in developing countries, the talent of brilliant students may never be revealed unless efforts are made to identify it. The speed with which India has been able to develop new technologies and embark on the space programme testifies to the success of its talent search project.

Income-Generating Educational Activities

54. Throughout the Commonwealth there are many examples of revenue generation within educational systems. For example, in the Seychelles, vegetables grown in school gardens, and eggs collected from school poultry, contribute food-stuffs for the school meals programme. At higher levels of education the Maritime Studies Programme of the Polytechnic has been organised to make substantial catches from the sea with a view to recouping the cost of the fishing boats. In addition, the Art and Design Department designs prototypes of objects for future mass production.

55. In Nigeria, the concept of generating income from educational activities has been developed to a high pitch in one of the secondary schools in the Ondo State where the students are organised into clubs: the Farmers Club, the Poultry Club, the Furniture Club, the Electricians Club, the Tailors Club, the Correspondence Club, the Bakers Club, etc. A student cannot belong to more than two clubs but must belong to at least one. Each club receives the initial capital it needs from the school and has a bank account into which it pays the proceeds from its commercial activities. Experience shows that by the time a club has been operating for about five years, it can expect to be sufficiently well established to acquire an air of professionalism. To take two examples, the Bakers Club

has been able to meet not only the needs of the staff and pupils but to sell its produce in the town market, and the Furniture Club was successful in winning a tender to supply classroom furniture for another school. Yet the academic performance of this school, as shown by the yearly national examination results, is not below average.

Student Revolving Loan Fund

56. In Barbados, where students are not required to pay fees for their university education, it became evident in the mid-1970s that rising costs coupled with increasing demand for student financing were becoming a strain on the Government's resources. Accordingly, a revolving loan fund has been established by which students can obtain long-term loans at low rates of interest. In this way, students with limited financial means are not denied opportunities leading to higher levels of personal and national income. They are pleased with the scheme, as is the Government which is able to channel applicants to those studies which will enhance the implementation of the country's manpower development plans. Moreover, the principle that students should contribute to the cost of their education has been clearly established.

THE DROP-OUT PROBLEM

57. Until the introduction of free primary education in Nigeria the drop-out problem was not of great significance. There were two reasons for this. First, up to that time, those children whose parents could afford the fees were not allowed to drop out, and those whose parents could not afford the fees did not attend. Second, those parents who were opposed to Western education on religious and cultural grounds sent their children to Koranic schools.

58. With the introduction of free primary education, however, a massive drop-out phenomenon began. This has been analysed in three studies. One of the findings is that in three cohorts of primary school pupils (1959/64, 1960/65 and 1961/66) the wastage rates were very close (52.2%, 55.4% and 58.0%). A second finding is that a child in a hamlet school has only a 15% chance of finishing his primary education, or a 42% chance if he lives in a slightly bigger village. This must be considered in relation to the fact that villages with populations under 1,000 contain over 50% of the country's primary school children.

59. The following causes of large drop-out rates have been identified:

(a) The Rural Area Factor. Most of the primary schools are situated in rural areas. Teachers in rural primary schools are less qualified than those in urban areas. So children in those schools are less well taught and less motivated towards education. The incidence of drop-out is therefore heaviest among them.

(b) Education not being Totally Free. Some parents expect education to be entirely free. On finding

that they have to pay for uniforms, books, mid-day meals and occasional levies, they become disillusioned and withdraw their children.

(c) Loss of Child Labour. To many parents the loss of their children's labour, particularly at the planting and the harvesting seasons, constitutes a serious economic loss.

(d) School Discipline. Some children find school discipline alien to the free-and-easy, happy-go-lucky, drum and dancing atmosphere of village life. They fail to adjust, and leave.

(e) Lack of Gainful Prospects. Children who see school-leavers with no work to do consider it not worth while to spend another year or two in school only to join the army of the unemployed.

(f) Children's Home Attitudes. Many of those children whose parents did not attend school are not sufficiently motivated by their families to stay and complete their schooling.

60. It is the opinion of the author of one of the surveys (7) that, over the period 1961/71, up to a quarter of the entire bill of primary school teachers' salaries was lost through shrunken classes caused by the drop-outs. The recurrent cost implications of drop out at the primary school level for the first UPE intake up to Class 6 of 1981/82 is worked out in Annex B of this paper. It shows that total teachers' salaries per primary Class 6 teacher increased by 65% due to drop outs.

61. How, then, can the drop-out problem be cured? One possibility is to up-grade the quality of schools in rural areas so as to induce teachers to remain there instead of seeking posts in the towns. Another is to launch a public enlightenment campaign to inform people that education cannot be entirely free. A third is to encourage teachers trained in modern methods of handling children to introduce their pupils gradually into the regime of the school through the medium of plays, games, singing, dancing and story-telling. In addition, it is hoped that the introduction of the new secondary education structure in which children will pursue pre-vocational courses in woodwork, metalwork, electronics and mechanics, will motivate pupils to complete their education.

IV CONCLUSION

62. Governments have an obligation to ensure that the money they allocate to education is well spent. Those responsible for formulating and implementing educational policy need to ask themselves such questions as: Can savings be made in expenditure without lowering the quality of education, and, if so, where can they best be made and at what point will they become counter-productive? Are changes needed in the administrative system so as to actively promote cost-effective measures? What contribution can improved teaching methods, innovative training procedures and new technologies make in extending the provision of education or raising its quality while lowering costs per pupil or per teacher?

63. However, the responsibility cannot rest with governments alone. The problem of educational financing cannot be overcome unless its very basis is critically examined.

64. Today's younger generation have been born into a world in which free education at all levels has come to be regarded as their birth-right notwithstanding the rapidly rising cost of education brought about by inflation, the impact of the world economic recession on the finances of their countries, and the claims of other sectors of government for a just share of national resources. Commenting on public attitudes towards education, particularly higher education, one of Nigeria's University Vice-Chancellors recently said "We regard education as a meal ticket, for securing a job and in other materialistic terms. It is the ladder for climbing most conveniently to the elite group, to improving the standard of living, to having a "fair share of the national cake", to wielding power, to making it."(8)

65. In these circumstances education must be seen as a joint venture whereby those who benefit most directly from it see themselves as co-partners in an enterprise towards which it is appropriate that they should contribute. Students, parents, employers and the communities in which they live must help to maximise the cost-effectiveness of the education system which they rightly demand. Are there contributions which the community can make more effectively than governments? Are there costs which can be carried by individuals, families and communities to their own benefit and to the benefit of the system as a whole?

66. In exploring these and similar questions, countries will have to draw in the main upon their own experience and resources. Yet at the same time, as members of the Commonwealth, they should not overlook the opportunities that exist for them to benefit from one another. With their common heritage, shared values and close connections, Commonwealth countries are uniquely capable of exchanging information and expertise, and of co-operating in the solution of mutual problems. As the country papers show, a wealth of experience exists on the implementation of cost-effective measures in education. Commonwealth countries have much to share, and it is my hope that the Cyprus conference will be instrumental in making the knowledge gained in individual member states accessible to all.

ANNEX A

PRIMARY SCHOOLS, CLASSES AND PUPILS (GRADES 1 TO 3)
IN FOUR LOCAL GOVERNMENT AREAS OF SOKOTO STATE, NIGERIA 1980/81

Local Government Area	Number of Schools	No. of Classes in Grades 1-3			No. of Pupils in Grades 1-3			Pupils per Class in Grades 1-3		
		1	2	3	1	2	3	1	2	3
Argungu	116	104	64	103	4382	2269	4133	42.1	35.4	40.1
Gwandu	188	170	104	199	6876	3764	6815	40.4	36.2	34.2
Tambawal	100	76	85	64	3034	3416	2300	39.9	40.2	35.9
Yabo	710	96	106	73	3862	4349	2929	40.2	41.0	40.1

ANNEX B

RECURRENT COST IMPLICATIONS OF DROP OUT AT PRIMARY LEVEL*

1. Pupils who drop out from school increase educational costs partly because the cost per pupil rises when the number of pupils per class falls, and partly because those resources devoted to the education of pupils before they drop out are largely wasted.

2. A study of seven States in Nigeria revealed the following average drop-out rates in each of the six grades:

<u>Grade</u>	<u>Per Cent</u>
1 to 2	18.0
2 to 3	11.6
3 to 4	7.6
4 to 5	2.1
5 to 6	7.4

By Grade 6 the over-all 'survival' was 60.7% of the Grade 1 intake: in other words, 39.3% dropped out.

3. The extent to which the drop out affected the cost per pupil has been demonstrated in respect of teachers' salaries. In order to simplify matters, the calculations were based on an initial enrolment of 80 pupils, i.e. the intake into two Grade 1 classes. Using the drop-out progression rates given in paragraph 2 above, it can be seen from the table on page 18 that the number of pupils per class drops from 40 in Grade 1 to 24.5 in Grade 6 (column 3).

4. Assuming one teacher per class receiving salary and allowances at Grade Level 05 (Grade II certified), step 4 on the 1983 salary scale, the annual emoluments per class total ₦2,786. For a Grade 1 class with 40 pupils, the cost per pupil is ₦69.60. For a Grade 6 class with only 24.5 pupils it rises to over ₦113 (column 4).

5. The two-stream school taken from this example has a total of 359 pupils in all six Grades (column 1). The total salary costs for the 12 classes are ₦33,408, giving an average unit cost of ₦93.06 per pupil. Had there been no drop outs, 480 pupils would have been educated for the same sum, that is for ₦69.60 each.

6. To demonstrate the cost-increasing effect of drop-out, the number of school leavers produced out of a cohort of 1,000 beginners has been calculated. With an overall drop out of 39.3% of the original intake, 607 out of every 1,000 beginners reach Grade 6 (column 5). The total salary cost of ₦69,600 for 1,000 pupils in Grade 1 is also required for each higher grade because the classes, despite the loss of pupils, are still not small enough to be merged. The total amount of ₦417,600 for six grades has to be spent to produce 607 Grade 6 leavers, i.e. ₦688 for each pupil completing primary school. Had all 1,000 beginners reached Grade 6, the cost would have been ₦417.00 per pupil.

continued/...

* Federal Ministry of Education, Science and Technology/UNESCO Planning Team, Lagos, May 1984.

RECURRENT COST IMPLICATIONS OF DROP-OUT AT
PRIMARY LEVEL OF EDUCATION

Grade	Number of Pupils	Number of Classes	Pupils per Class	Teachers' Salaries per Pupil (₦)	Number of Pupils in a Cohort of 1,000	Salary Costs for Pupils in Cohort (₦)
0	1	2	3	4	5	6
1	80	2	40.0	69.60	1,000	69,600
2	66	2	33.0	84.36	820	69,600
3	58	2	29.0	96.00	725	69,600
4	54	2	27.0	103.11	670	69,600
5	52	2	26.0	107.08	656	69,600
6	49	2	24.5	113.63	607	69,600
Total/ Average	359	12	29.9	93.06	4,478	417,600

Salary costs are calculated at constant (1983) prices.

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