

Ninth Conference of Commonwealth Education Ministers

Nicosia, Cyprus: 23-26 July 1984

OVERVIEW OF THE COUNTRY PAPERS

ON AGENDA ITEM II

RESOURCES FOR EDUCATION AND THEIR COST-EFFECTIVE USE



Commonwealth Secretariat

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RESOURCES FOR EDUCATION AND THEIR COST-EFFECTIVE USE:

AN OVERVIEW OF THE COUNTRY PAPERS

INTRODUCTION

1. This overview paper is based on the 36 country papers prepared by Ministers of Education at the request of the Commonwealth Secretariat as a major contribution to discussion on Resources for Education and their Cost-Effective use at the Ninth Conference of Commonwealth Education Ministers held in Cyprus from 23 - 26 July 1984.

2. Ministers of Education were invited to address themselves to the main areas of action that countries are using either to increase resources for education or to improve their cost-effective use. This overview has attempted to identify from the country papers two types of information:

- A Common features and trends to the problem of limited resources for education.
- B. Innovative solutions used by a few countries that may be of wider interest.

BACKGROUND TO THE ISSUES

3. Public sector spending in most countries has been under substantial pressure in the 1980s for a number of reasons. The impact of global recession has been a particularly important factor in restricting the growth of education budgets in real terms and it has reversed an expansionary trend that prevailed in most countries during the independence decades 1960 - 1980. Studies indicate that apart from a few exceptions such as Zimbabwe, expenditure on education is at best remaining stable and in some cases is actually declining. Moreover, it would appear that Official Development Assistance is unlikely to be sufficient to compensate for domestic shortfalls during the present recession.

4. The papers reveal that financial stringency is beginning to bite almost everywhere. But the different bases on which the papers present this information makes comparison difficult.

5. Most countries claim no more than that they have been able to keep expenditure on education level. If inflation is allowed for, a fixed level of expenditure in fact means, as in the case of Malaysia, a decline in real terms.

6. Falling rolls, the result of declining population, have allowed a few countries to reduce educational expenditure: Bermuda and Malta are cases in point. In other countries similar demographic trends have been taken as an opportunity to make improvements. In Canada, falling enrolments have been viewed as an opportunity to increase the number and variety of services offered. There has been a substantial increase in Canada's educational expenditure during the past decade, though, because of other competing claims

on public expenditure, education's share of the national budget has fallen. Australia, which is also experiencing declining enrolments, has responded for the time being in the same way as Canada. In Britain, there has been in real terms a slight reduction in overall educational expenditure in response to a policy of restraint in public spending. However, Britain's figures conceal sharp reductions in some services such as school meals, school transport and the level of student grants and improvements or expansion in others.

ALTERNATIVE SOURCES OF FUNDING

7. Increased resources for education can be obtained in a number of ways, such as:

- A. Increasing the overall share of the national budget;
- B. Transferring financial responsibility to other institutions or individuals;
- C. Letting institutions generate income;
- D. Attracting development aid.

A. Increasing the Overall Share of the National Budget

i) Real increases

8. Very few country papers report a real increase in the allocation of national resources to education. The effects of world recession on national budgets, and the need to balance and reconcile political priorities have all had their effect. Countries without mineral oil production were the first to be hit when the cost of importing oil escalated sharply in 1973/74. Inflation followed for most countries, making it difficult to maintain development targets without heavy borrowing. As unemployment and recession increased therefore, funds for educational expansion were reduced and, for most countries, it became a matter of cutting back on educational expenditure or at best of marking time. The optimism of newly independent countries took a severe beating, added to which came widespread questioning of education's role as a national investment. In consequence, the almost automatic priority enjoyed by education in the allocation of national resources during the 60s and 70s largely disappeared.

9. Ever-growing competition for funds comes from defence expenditure, so much so that Kenya refers to the allocation to education and training as 41% of the civil budget. Other country papers do not distinguish between defence and civil budgets and so comparison is impossible.

10. Further competition for funds comes from an ever-increasing range of government ministries and services so that ministers of education often count themselves fortunate if they can maintain their existing proportion of the national budget. However, it would appear that most countries allocate some 15% - 20% of their national budget to education.

11. A few such as Lesotho, Uganda and Zimbabwe manage to allocate 20% or more of their national budget and some have even been able to increase in real terms the share to education. Zimbabwe is outstanding in this respect having increased its allocation to education from Z\$112.5 million to Z\$396.6 million between 79/80 and 82/83 - a phenomenal increase of 252 per cent. This kind of rise is not uncharacteristic of countries in the immediate aftermath of independence.

ii. Sharing the cost of education with other ministries

12. Many countries report increased expenditure on education and training by ministries other than education. Australia, for example, describes the increased federal, state and local government contributions to the Community Employment Programme, a job creation project that embraces several ministries. The Bahamas cites the role of the Ministry of Agriculture, Fisheries and Local Government and the Ministry of Youth, Sports and Community Affairs in promoting non-formal education. Co-operation of this kind is also reported by India and Mauritius. The phenomenon is probably much more widespread than the various reports suggest.

iii. Tapping other government sources

13. In Canada an initiative has been taken by the Province of Alberta which automatically increases government funding to education up to a ceiling of \$80 million. This Advanced Education Endowment Fund matches dollar for dollar contributions from business, industry, organisations, foundations and individuals. Papua New Guinea has a similar 'kina for kina' scheme whereby the government adds one kina for every kina raised locally for particular education projects.

14. An interesting innovation for tapping government funds is described in the Sri Lanka country paper. In this case, half of all the money raised in the National Development Lottery conducted by the Ministry of Plan Implementation is allocated to the Scholarship Trust Fund for grants to university students. (see also paragraph 28).

B. Transferring Financial Responsibility to other Institutions or Individuals

15. This is the most widely reported means of finding additional funds for education and takes the form generally of passing on educational costs to one of the following:

- i. the community;
- ii. voluntary agencies and private organisations;
- iii. commerce and industry.

i. The Community

16. A widespread educational practice reported by the Bahamas, Guyana, Malawi, Malaysia, Tanzania, Zambia and Zimbabwe is of community acceptance of responsibility for building and maintaining schools. In some cases the community provides everything needed to erect and furnish the building; in others, the building materials and school equipment are supplied by central government and the community provides only the labour.

17. Gifts and fund raising by community groups and individuals is a widely reported source of community funding. An outstanding example of this is the Harambee or community self-help movement in Kenya which, with the support of political and civic leaders, has built more than half of all the secondary schools put up in 1983 and staffed nearly one-quarter of them. Zimbabwe reveals that 70% of the capital cost of secondary schools in the country is met by parents and the local community. Malta mentions the institutionalisation of parental support by having parent-teacher associations in almost every government school and there are doubtless many examples of this elsewhere too.

These bodies contribute such things as prizes, books for school libraries, radio and television equipment and public address systems for the schools. The role of old students' associations is notable in some countries and Sierra Leone reports one such association building an endowment fund of one million Leones and others contributing to health centres, chapels and other special buildings. It also mentions the significant contribution that other groups can make, citing Le.21,337 raised in a very short time by the development fund committee of one school in order to build additional classrooms and a wall round the school premises.

18. Community assistance in the form of voluntary teaching and non-teaching duties is also found. Britain, for example, reports extensive use of voluntary teaching help for some of its adult literacy and basic skills programmes with about 24,000 volunteer tutors taking part. The Seychelles also makes use of volunteer teachers in its community centres.

19. Voluntary support of this kind comes in many forms. As already noted, much of it comes as labour to help with building, maintenance, teaching and non-teaching duties. But much comes from cash raised by gifts, trade fairs and other fund raising projects.

20. Many countries which have long sought for social reasons to provide free education have been forced to introduce charges. Some do so indirectly in requiring pupils and students to provide school stationery, textbooks, uniform and other equipment. Others charge tuition fees directly. In government schools, such fees do not cover the full cost of education. For example, Lesotho which has a well established system of charging fees estimates that only 30% of the expenditure on primary and secondary schools in the country is met by fees. But, in recent years, Britain has decided to charge 'economic' or full-cost related fees to overseas students attending further and higher education institutions. One possibly beneficial side-effect of this has been to draw attention to the real cost of education.

21. One consequence of the dilemma faced by countries with escalating costs for higher education on the one hand and relatively fixed resources on the other is the number of countries shifting the basis of higher education financing from a tuition-free basis to fees-cum-loans. Barbados, for example, introduced its Student Revolving Loan Fund (SRLF) in 1977 with capital amounting to US\$ 1.2 million. Beneficiaries were qualified Barbadian students from families with limited access to resources to finance their post-secondary studies in fields determined to be of priority for the continued social and economic development of the country. The SRLF was not intended to provide higher education for all who wanted it, but only for those who needed assistance and only to those studying in fields established as manpower priorities by the government. Despite some teething problems encountered with the SRLF, Barbados enlarged the project in 1984 to incorporate a wider range of higher education provision and a larger number of students.

ii. Voluntary agencies and private organisations

22. There is a trend indicated in the country papers for governments to pass an increasing amount of the cost of schools to the private sector. Private schools are frequently the result of educational initiatives by religious bodies. Muslim countries such as Brunei, Malaysia and the Maldives have a large number of institutions with Muslim foundations offering education at different levels. Similarly, many developing countries in Africa, Asia and the Pacific have numerous christian church or mission schools. India speaks

of the need to encourage voluntary agencies; Malawi records its support for private secondary schools and its encouragement for them to seek financial support from charitable organisations both in and outside the country.

23. Some private schools have specially defined roles such as English medium schools or schools for expatriate children, and many countries have schools of this kind.

24. Another form of private venture, often associated with community enterprise, finds its expression in non-formal education. For example, the Tonga country paper reports the activity of the Niuola Women in Development Organisation which has 153 affiliated member organisations across the country all committed to improvement of the quality and standard of living of the people through the implementation of new ideas. This involves teaching and training. The test of skill mastery adopted by this organisation is when the trainee can teach the skill to another person who can then perform it satisfactorily. The cost of the educational activities of the organisation are borne by it and no liability falls to the Ministry of Education. Indeed the organisation relieves other ministries of expenditure also as, for example, in one project in which it was responsible for establishing a water supply, in co-operation with the Tonga Water Board, for the home village of Niuola. With the project successfully completed, the Niuola Women in Development Organisation assumed responsibility for the maintenance of the water supply and for the collection of rates.

iii. Commerce and industry

25. A number of ways in which commerce and industry help to finance education appear in the country papers. The Bahamas mentions that scholarship awards are offered by local private firms, industries, business and service clubs. Kenya, Malta and Sierra Leone report sponsorship by businesses or industries for individual students. In some cases, this sponsorship can mean simply payment towards the costs of training by others, but in others it includes responsibility for providing training. In Swaziland industry often makes voluntary contributions to the cost of educational projects if these occur in the locality of the industry.

26. An interesting initiative tried by the governments of Cyprus and Jamaica is described in the country papers. This involves a tax imposed on business and industrial firms specifically for education. In the case of Cyprus 0.5% of the total industrial wage bill is charged and used to train people for industry and improve the skills of those already working in industry. In Jamaica, in order to fund Human Employment and Resource Training (HEART) there is a tax of 3% of private sector employees' wages.

27. Perhaps the most innovative solutions to the transfer of financial responsibility by governments to other bodies is to be found in the papers supplied by Australia, Mauritius, Seychelles and Sri Lanka. Australia gives an example of how educational costs can be spread. It mentions how the construction of its second post-graduate school of business management at the University of Melbourne is being financed as a co-operative effort between the Federal Government, the University of Melbourne and the Melbourne business community. Mauritius reports the adoption of certain primary schools by private firms, hotels and banks. Such adoption results in these firms paying for such things as repairs, the replacement of equipment and the setting up of libraries. Seychelles has an on-going arrangement for spreading costs in in-service education whereby the Government provides a portion of the instructional cost; industry and commerce provides the balance together with

a portion of the time in which the employee is released for training: the employee also commits a portion of his own time for training.

28. Sri Lanka is the only country to report the use of national lotteries for raising funds for education. Mention has already been made of that country's National Development Lottery (paragraph 14). In 1981 the Mahapola Higher Education Scholarship Trust Fund, administered by a Board, was inaugurated to assist university students. A second nationwide annual lottery was launched and the proceeds from it are credited to the Scholarship Trust Fund. The money value of the scholarship is sufficient to cover part of the expenses of each holder. The allocation of scholarships is entrusted to the University Grants Commission which awards 90% of them on the basis of need and 10% on the basis of merit. The number of scholarships has grown from 423 in 1981 to 2,500 in 1983 and is expected to reach a total of 3,500 in 1984. Funding of this order is likely to be of much interest to other countries.

C. Generating Income Through Institutional Activity

29. Income from institutions can be raised in three ways:

- i. the sale of redundant buildings;
- ii. hiring out premises and services;
- iii. the sale of products.

i. The sale of redundant buildings

30. Britain and Canada are the only countries to report this as a method of providing funds for education and their experience may be of use to other countries with declining enrolments. Britain makes the case for the disposal of redundant buildings by noting that 20% of the cost of maintaining each pupil in school is related to the repair, cleaning, heating, lighting and associated staff costs of school premises. It draws attention to how sensitive an issue the process of disposal can be with local communities. However, because of the significant savings that can be made, the Architects and Building Group of the Department of Education and Science co-operates with local education authorities in the development of cost-effective strategies designed to remove surplus places, improve retained buildings, reduce current expenditure and to release surplus land. The Ministry of Education in Ontario faced with similar problems to those experienced by Britain, has developed a set of procedures for identifying, cataloguing, and disposing of surplus sites. In Canada, at a regional level, an inventory of surplus sites and buildings held by school boards is assembled on a continuous basis, thus facilitating appropriate action by school boards.

ii. Hiring out of premises and services

31. This means of raising funds for education is widely reported. In Bermuda the charges are small, being related only to caretaker and service costs. In Britain a thriving business has been developed by some universities through letting their facilities on a commercial basis. Brochures describing the facilities and charges available for conference organisers are advertised widely. Similarly lucrative marketing is carried out by universities in suitable locations and with appropriate accommodation to attract tourists in vacation time. Malta also reports the use of school buildings in holiday time as a source of income, mentioning in particular the use of schools with sea-side sites for children's holiday camps and the use of school playing fields and gymnasias for recreative use by various associations.

32. Income from the hire of expertise appears to be increasing. Universities from a number of Commonwealth countries have made staff available for consultancies for many years. Nigeria has formalised this by advising their universities to offer consultancy services within their fields of specialisation. The hire of institutional expertise is not limited to universities, however, and several countries report how other kinds of institutions derive income from the services they offer. Brunei, for example, offers the employment of students in training at the Sultan Saiful Rizal School of Buildings for essential projects that would otherwise be tendered out to contractors. Guyana, Jamaica, Malta, Seychelles and Zimbabwe all mention similar uses of institutional resources for generating income.

iii. The sale of products

33. Most of the countries which mention the hire of institutional services also note the income that is derived from the sale of products. Of course it is difficult sometimes to distinguish between a service and the end product of that service. In consequence, many of the countries that offer technical services such as building, carpentry, furniture making, plumbing, electrical installations, painting and decorating and automotive engineering also have an end product to sell. Brunei mentions the sale to the public and Government departments of products of the Brunei Arts and Handicrafts Training Centre. Canada refers to the sale of high quality courseware developed by the Educational Technology Program of Manitoba. Guyana mentions the introduction of productive work in schools with the aim of making them partly self-supporting. (See also paragraph 47 on the role of specialised production units). Jamaica reports the success of a similar enterprise in agricultural schools where income from the sale of produce offsets recurrent expenditure of the institution. Although not mentioned in its country report, Papua New Guinea gave an account at the Conference itself of a commercial loan taken out to purchase a coffee plantation to be used to provide early school leavers with work experience that would enhance employment prospects. The success of this project was outstanding and enabled not only the recurrent costs of the project to be covered but early repayment of the loan to be made also.

34. The Zimbabwe Foundation for Education with Production has assisted schools which espouse the philosophy that effective education is best derived from meaningful activity. These schools grew out of the liberation struggle. In the first phase, the students put up the buildings and installed the electricity, water and sewer services. In the second phase, students began to undertake commercial contracts which attracted income. Such projects enabled the students to apply what they learned in the curriculum and in this way not only to exercise their technical skills such as bricklaying, plumbing, electric wiring, carpentry but to gain experience in skills such as budgeting, planning, accounting and marketing which are so necessary to success in running any small business. The Seychelles is pursuing a similar approach in its Polytechnic where already the Art and Design department is aiming at self-sufficiency and the Maritime Studies programme has been required to recoup the capital costs incurred with the purchase of fishing boats by selling its catch to the national parastatal body responsible for fish marketing.

D. Attracting Development Aid

35. Most countries acknowledge the role of development aid in helping to meet development objectives, but many draw attention to the fact that the expanding need for assistance together with the effects of world recession on donor countries have contributed to growing difficulties in obtaining development aid.

36 The importance of such aid, particularly to small countries, is reflected in the Swaziland paper which places international aid alongside government and community funding as a mainstay of educational provision in the country. If international aid were to be lost or even reduced, some countries would find it impossible to sustain their current level of educational provision.

37. Those countries such as Botswana, Lesotho, Swaziland and Tanzania with a refugee influx face added difficulties in funding education. For them, international aid and assistance from the United Nations High Commission for Refugees can be critical.

38. There are no special initiatives in this field reported in the country papers and no secrets for success in attracting aid. However, there is a need for bilateral aid to continue and for some kind of assistance to be available to poor countries which lack the resources for managing effective aid negotiations with donor agencies.

INITIATIVES TO REDUCE COSTS

39. Although most developing countries would claim to be in the business of expanding education, not reducing it, the country papers show that, because of financial pressure, there has been much careful examination of how cost reductions can be introduced without impairing the system. Apart from the use of more cost-effective methods of providing education, which topic is dealt with in the next section, initiatives by member countries to reduce costs appear to fall into two categories:

- A. Reducing inputs;
- B. Reducing the cost of inputs.

A. Reducing Inputs

i. Disposing of redundant buildings

40. In countries which have a surplus of school buildings, an obvious cost saving can be achieved by the disposal of these. This has been done by countries with falling enrolments such as Australia, Britain, Canada, Mauritius and New Zealand; but not without difficulty since local communities that have enjoyed neighbourhood schools naturally resent their closure and their children having to travel to other schools. Mention has already been made in the section on generating income from institutions of the action taken in Britain and Canada with this sensitive issue. If wisely executed, the disposal of redundant buildings is not only an opportunity to be rid of unnecessary maintenance and service costs but an opportunity to phase out buildings unsuitable for their purpose and to release resources for other purposes.

ii. Reducing the number of teachers employed

41. Just as falling enrolments provide an opportunity to reduce the number of schools, so also do they provide an opportunity to reappraise the number of teachers employed. And, since teachers' salaries can represent up to 90% of educational expenditure, any reductions in teacher recruitment and employment can give significant cost savings. Countries are understandably coy about reporting reductions in the teaching establishment preferring to

point to falling pupil enrolments as an opportunity to improve the quality of the teaching profession. But Mauritius notes that in the process of increasing pupil-teacher ratios the Ministry of Education has decided not to recruit additional primary school teachers between 1985 and 1986 thus effectively reducing the overall number of teachers. The Seychelles also mentions how, by reducing by one period per day the number of formal periods of instruction supervised by trained teachers, the total number of teachers could be reduced by 14% with remaining recruitment being devoted to trained teachers. In this way an overall reduction in the teaching establishment resulted in an improvement in the quality of the teaching force.

iii. Shortening courses

42. Cost savings can be achieved by reducing the number of years pupils or students spend in school. This policy can achieve significant savings both in the need for accommodation and teachers. Tonga reports in some detail the results of a national committee commissioned to make proposals for the introduction of national examinations at Forms 5,6 and 7 to replace the present external examinations offered by New Zealand. This committee has recommended that with new and improved secondary curricula, pupils can achieve university entrance standards after only six years instead of eight as previously. Other countries report restructuring the number of years spent in primary education but for the most part are content to rejig the years in school rather than reduce them. India draws attention to the accelerated teaching it has implemented for out-of-school children aged 9 - 14 whereby learning is achieved in two years that in younger children would take eight. Nigeria reports a shortening of the B.Ed degree for certain undergraduates. (See paragraph 49).

iv. Reducing the range of subjects taught

43. Reduced costs can be achieved by reducing the curricular options in schools. This is particularly important in relation to secondary schools in rural areas where the number of pupils may not be sufficient to justify employing a large number of specialist teachers. Lesotho has faced this problem head on by establishing policy guidelines that secondary schools with fewer than 300 students should offer no more than eight subjects and that high schools with fewer than 450 students should offer no more than ten subjects.

v. Reducing standards

44. It is possible to reduce costs by reducing standards, but understandably countries turn to this as a last resort. However, Tanzania may speak for others who find the economic pressure of current times intolerable when it admits that because of lack of funds, most of its schools are run below minimum requirements.

vi. Reducing services

45. Many countries have been compelled by force of circumstances to re-appraise their provision of social services such as school meals, boarding, school transport etc. These services represent a substantial element in the educational expenditure of some countries. It is noteworthy, therefore, that a number, even those where political ideology or public preference is for their retention, are reducing the number of boarding schools and residential teacher training colleges. But Jamaica reports that, so important does it see the nutritional role of school meals to children's physical and mental wellbeing, that it is actually expanding the programme.

B. Reducing the Cost of Inputs

46. There is some overlap between this section on reducing the cost of inputs and that which follows on improving the cost-effectiveness of educational expenditure. The distinction is largely one of emphasis and so, in this section, attention is focused on initiatives primarily intended to maintain effectiveness at reduced cost, while in the section that follows attention is turned to initiatives where the aim is for achieving greater effectiveness with the same money cost.

i. Substituting cheaper inputs for expensive ones

47. If cheaper inputs are substituted for expensive ones, cost savings will follow and many countries report efforts to find these savings. Australia reports that as a result of national studies of school buildings during the past six years, construction costs have been reduced by 18% and that building quality depends more on the skill of the designer than on the cost per square metre. Reports of these studies are available and cover a wide selection of topics such as design, planning, materials and finishes, renovation, needs for art, science, special education and community use. The Gambia has a School Building Unit that has developed a standard plan for school buildings which optimises the use of local materials and labour. It provides buildings at half the cost of those put up by the Public Works Department. However, further research and experimentation by the Unit have brought about improvements to the design with less space wasted on circulation and more flexible auxiliary space provided. Experimentation with low cost windows and doors and the use of burnt brick for construction have reduced costs by a further 30%. Jamaica has developed standard plans for schools for 300, 600 and 1,200 pupils. Tanzania has encouraged low cost building on the grounds that more schools can be built for the same amount of money. Zimbabwe shares this aim and has pursued it by tendering school construction to local contractors who, on average, can build for half the price charged by large and international contractors.

48. Locally produced teaching materials are another way of substituting low cost inputs for expensive ones. Gambia has made impressive steps in this direction with its Book Production and Material Resource Unit which serves not only the formal system of education but also the non-formal. In contrast to some countries which have followed low cost production methods when producing instructional materials, The Gambia has found it cost-effective to use a small, highly trained and efficient staff using high technology equipment rather than labour intensive measures. Factors that its paper notes as important include standardisation of machinery, compatibility between the function of one machine and another, using cheap sources of supply and providing good storage facilities. Jamaica, Kenya and Zimbabwe all mention their production of low cost science equipment, the last offering science kits that enable schools to teach science without laboratories and at a fraction of the cost. In the same context, Nigeria reports the work of the Federal Science Equipment Manufacturing Centre, the National Education Technology Centre and various State Science Equipment and Resource Centres. The Seychelles and Uganda also note the cost-benefit of locally produced teaching materials.

49. One of the most frequently mentioned cost reductions occurs in relation to teacher training. One method is to replace residential training colleges with day institutions. However this approach presents serious problems for small countries and those with large rural populations. Another method is to dispense with the high cost of employing teachers to replace those withdrawn for training by conducting on-the-job training using distance education.

India's Centre for Educational Technology caters for thousands of teachers each year with its distance courses and Nigeria's National Teachers' Institute has the capacity for training 40,000 teachers per year on-the-job. But one of the most impressive training systems for teachers is provided by the Zimbabwe National Integrated Teacher Education Course which combines face-to-face instruction with distance education and on-the-job training and has by this means drastically reduced recurrent costs related to teachers' salaries. Nigeria has reduced costs in the training of some teachers by shortening courses. For example, holders of the Nigerian Certificate in Education are allowed to complete B.Ed degrees in two years instead of the three required of Higher School Certificate and 'A' level pass holders.

ii. Restructuring salaries

50. Most developing countries have rid themselves of the need to employ expatriate teachers on special contracts for primary education. Several still have a need for this expensive form of teacher recruitment at secondary level and in post-secondary education, but they are reducing educational costs whenever they can by replacing expatriate teachers with suitably qualified nationals.

51. While a number of countries admit to the method above for reducing the cost of education, none admits to another widespread means of cost cutting related to teachers' salaries. This occurs primarily in countries with substantial inflation and is brought about by salary increments and awards being set at less than the rate of inflation. The net effect is a reduction to the employer (usually the government) in the cost of teachers' salaries.

INITIATIVES TO INCREASE THE COST-EFFECTIVENESS OF RESOURCE USE

52. It is clear from the country papers that member countries would prefer to increase resources for education but are realistic enough to accept that in the current world economic climate this is well nigh impossible. The initiatives reported in the country papers to improve the cost-effectiveness of resource use emphasise positive action in four important areas:

- A. Maximising the use of buildings
- B. Maximising the contribution of teachers
- C. Maximising teacher support services
- D. Maximising management efficiency

A. Maximising the Use of Buildings

i. Efficient building design

53. Many countries would like to make more intensive use of their school buildings but find the cost of alterations to make them more flexible would be prohibitive. It is therefore interesting to note the research that has been carried out in a number of countries such as Australia, Britain and Canada into school building designs that focus on efficient utilisation. Australia mentions how she is actively promoting the adoption of new school building designs and concepts conducive to community use. Canada reports the difficulties of using buildings for school and community use where these shared functions were not anticipated and planned for by the architect.

54. Britain draws attention to an interesting experiment to provide maximum flexibility for science teaching at Bristol Polytechnic. In this case the only permanent elements are the load-bearing walls and, as a result of this, laboratory layout and classroom space can be quickly and cheaply altered by simply moving the demountable partition walls and rearranging the loose benches and storage units. The same principles can be applied to existing buildings by carrying electricity, gas and water services into spaces on overhead booms so that future conversions can be undertaken with a minimum of cost and inconvenience. Inefficiency occurs in many school buildings in over-generous provision of space used only for movement from one part of the building to another. Britain reports how such wastage can be reduced by good design.

55. Another source of inefficiency in buildings is peculiar to those countries which require heating in winter. Canada reports on useful work concerning improving the thermal efficiency of schools and this may be of interest to countries experiencing the problem.

ii. Merging small schools

56. Small schools are a problem to all countries which have low density rural populations and they are also becoming a problem to countries which are experiencing declining populations in their inner cities. They are not cost-effective because they make disproportionate demands upon resources, in relation to the number of children who use them. As a result, most countries are trying to merge their small schools to form larger units. But small communities do not welcome such mergers where they mean the loss of their school.

57. Barbados, Cyprus, Guyana and Malta are among those who report the problem and the point is made that where merging necessitates the provision of boarding facilities for some of the pupils who have long distances to travel, the additional cost of this may outweigh the cost-benefits of the merger. Consequently most mergers are implemented with only the provision of additional transport to enable children to travel daily to school. The introduction of boarding facilities is not usually the result of mergers; more commonly it springs from development policies to open up education in rural areas not previously served with schools.

iii. Sharing the use of school buildings

58. Increasingly, countries recognise the educational and economic benefits, that can be derived by sharing the use of school buildings. The most common type of sharing is where different groups such as 'shifts' of pupils or child and adult classes utilise a school building and its facilities at different times during the day. Less common is a sharing between the school and community where the community may utilise some of the pedagogical expertise of the school as well as the other resources while the school benefits from the skills and wider resources of the community. In the country papers, Bangladesh reports its aim to convert its primary schools into learning centres for the community; Cyprus mentions the use of schools for adult evening classes; Guyana describes how its university conducts evening courses in rural schools through its Extra Mural Department; Kenya relates the use of its schools for literacy programmes when necessary; Mauritius reports that it has opened its schools to the public for recreational and leisure activities and Swaziland how it has established Rural Education Centres at a number of its schools.

59. Only Sierra Leone voices the reluctance with which sometimes school heads and staff cooperate in such shared use of resources but this honest observation helps to highlight something of the administrative and security problems associated with the practice, such as teachers resenting having work removed from the blackboard by other users or equipment being damaged or stolen.

iv. Shift systems, the extended day and rotation of classes

60. Many countries report making use of the shift system in order to make more efficient use of school resources. The simplest shift system incorporates a morning session and an afternoon session in which one set of teachers teaches two sets of children. Real cost-benefit requires that the building or the equipment are used more intensively and teachers work longer than would normally be the case. There are obvious limitations to how far one can go along this path, but Jamaica who has had more than 12 years experience of shift systems in schools claims that they offer 50% savings in capital costs. She also claims that although shift systems have inherent social problems the space arguments outweigh these. Trinidad and Tobago does not agree and reports that the combination of household disruption and problems of security in the schools has curtailed the extensive use of shift systems there.

61. The extended day is a variation on the shift system and emphasises the period in which the building is open for work. The extended day spreads the load on special facilities such as the library, laboratory, canteen, etc. Jamaica has made extensive use of the extended day because of its potential for accommodating increased enrolment without introducing unacceptable hours for school attendance. By having the school open for more hours each day, use of specialist rooms and facilities can be spread over a longer time thus enabling more pupils to use them without overcrowding.

62. Rotation of classes, though practised in many countries, receives most comment in the country paper from Swaziland. Rotation enables enlarged enrolments to be accepted in schools without the need to increase the provision of buildings and other specialist facilities. For example, in a two-stream three-grade junior secondary school, Swaziland provides only four ordinary classrooms instead of the more usual six; careful timetabling enables classes to be taught in the specialist rooms at times when they are not required for specialist teaching. In a three-stream school, six classrooms are provided instead of the usual nine. Therefore there is a very substantial capital saving.

B. Maximising the Contribution of Teachers

63. The fact that in many developing countries, teachers' salaries account for up to 90% of the education budget makes the teacher a key figure in the cost-effectiveness equation. A number of ways are reported in the country papers for optimising the contribution made by teachers, the three most important of which are:

- i. increasing pupil-teacher ratios
- ii. increasing teaching loads
- iii. improving the qualifications of teachers

It is useful, therefore, to examine the effect of these approaches to cost-effectiveness.

i. Increasing pupil-teacher ratios

64. Educational research has suggested that higher pupil-teacher ratios do not necessarily militate against effective learning. This conclusion has not yet enabled many countries to increase pupil-teacher ratios impressively since teachers' unions, understandably, do not readily accept the convictions of the researchers. But it has encouraged governments to try to establish norms for staffing ratios in different kinds of schools. In practice, ratios range in primary schools from about 20:1 to over 50:1, though Lesotho has managed ratios of 75:1 using teacher aides. In secondary schools ratios vary from about 18:1 to over 30:1. The Solomon Islands reports an increase in staff-student ratios in its teachers' college from 9:1 to 16:1 while Sri Lanka has gone so far as to formulate norms for the determination of staff requirements in university faculties ranging from 7:1 in medicine, dentistry and veterinary science to 18:1 in social science, education and law.

65. However, it seems unlikely that effective pupil-teacher ratios can be improved significantly from those that exist now without radical changes in learning systems for, as Kenya points out, there is a limit beyond which it becomes professionally counter productive to increase pupil-teacher ratios. This issue is dealt with more fully in the last section of this paper on alternative learning systems.

ii. Increasing teaching loads

66. Many countries expect 100% teaching loads from their primary school teachers and express concern at anomalies that exist in secondary schools whereby some teachers of specialist subjects have teaching loads as low as 50%. Botswana has sought to correct the anomaly of lightly loaded specialists by employing more secondary teachers who can teach two or more subjects. India is dealing with the issue by redeploying teachers who are not fully occupied.

iii. Improving the qualification of teachers

67. There is a widespread belief expressed in the papers that the most cost-effective way to maximise the contribution of teachers is to train them properly. Consequently, many papers report on efforts being made to cut the number of untrained teachers employed in schools and the need to provide in-service training for teachers on a regular basis throughout their careers.

68. The lower costs of in-service or on-the-job training for teachers as compared with those of initial training in residential institutions has resulted in widespread provision of in-service training in member countries. The Bahamas has a programme of vacation training for mature teachers. The Gambia has adopted a carefully planned upgrading course for unqualified teachers with strict criteria for selection. This course is run jointly by The Gambian Teachers Union and the Department of Education with assistance from the Canadian Teachers' Federation and The Gambia International Research Centre. Kenya has organised a number of successful crash programmes for reducing the number of untrained teachers. A feature of these has been the amount of distance learning built into the course enabling teachers to study with the minimum of disruption to their work.

69. Nigeria has taken distance methods for teacher education a step further with the establishment of its National Teachers' Institute. This Institute provides a route for any teacher to obtain primary teaching qualifications without attendance at a teacher training college. Zimbabwe has adopted in ZINTEC the use of distance learning with a proportion of residential training

as the method for training the very large numbers of teachers required for its huge school expansion programme.

70. The need for training for special groups such as science and technology teachers is widely recognised and many countries have programmes for these. Recognition of the need for training principals and vice principals is not so widespread and so the account of this in the country paper from Trinidad and Tobago is interesting.

C. Maximising the Use of Teacher Support Services

71. Teacher support services include all those parts of the education system that provide teachers with the materials they need, that support them with the skills and resources they lack, and encourage them in their professionalism. Such support services include curriculum development centres, materials production units, teachers' centres, educational resource centres, and equipment repair and maintenance services. They also include the advisory service of departments of education and those professional associations that have a concern for the quality of teaching in educational institutions.

i. Instructional materials production

72. The fat years of the international educational publishers have passed and there is now a much greater concentration on home produced teaching materials. Curriculum development centres have spearheaded this change and have in many countries been responsible for writing and producing the textbooks and other materials now used in the schools. Bangladesh reports the close collaboration of its School Textbook Board and the National Curriculum Development Centre and a similar pattern of cooperation between bodies involved in getting teaching materials into the schools is to be found in many other countries.

73. The Gambia has a highly efficient Book Production and Material Resource Centre as do Lesotho, Swaziland and Zambia. Kenya has an Educational Media Service producing radio broadcasts and a School Equipment Service. Small countries with their small education markets are particularly difficult to serve economically and some have found cooperation with neighbouring countries a useful solution.

74. Many countries have discovered that production costs for teaching materials can be substantially reduced where local materials are used in their production. As a result, many countries such as Botswana, Nigeria, Seychelles and Uganda have established low-cost production units for science and other equipment formerly imported.

ii. Resource and service centres

75. Britain was the first country to promote the teachers' centre concept as a professional centre run by teachers for teachers. Since then many countries have experimented with the idea and reached various conclusions as to the kind of centre that best meets their needs. In some countries, the role of the centre has been to provide resources rather than professional and moral support as was the initial concept in Britain. As a result, so called teachers' resource centres, now found widely in the Commonwealth, offer a wide range of compromise between professional and material support.

76. Nigeria has established some very large comprehensive teachers' resource centres which incorporate curriculum development units, materials production, extensive library resources and advisory services. Such centres tend to be used by teachers for in-service training rather than on the informal basis of the original teachers' centre concept. Malaysia has four educational technology centres to stimulate the application of educational technology throughout the country and her rural libraries help to promote the reading habit and acquisition of knowledge of both adults and children. Centres are generally seen as a cost-effective way of using limited resources.

77. One of the problems experienced by developing countries, especially small states, is the need for service and repair centres for technical equipment. Nigeria refers to this problem in its paper and describes how the Federal Science Equipment Manufacturing Centre at Enugu was established not only to provide training in the manufacture of scientific equipment but in its maintenance and repair. Not many other countries have followed this path; instead they have left the private commercial sector to provide this necessary support.

iii. Advisory services

78. There is an inherent conflict of interests for advisers who share responsibility for assisting teachers professionally with that of assessing their performance. It is important, therefore, that where advisers act in a teacher support capacity, they should be independent of the Ministry of Education inspectorate or, at least of inspectorial duties.

79. In the Commonwealth, most advisory support for teachers comes from ministries of education, but increasingly, professional associations and teachers' unions are recognising the important role that they can play in the professional development of teachers. It is noteworthy, therefore, that reference is made in the country papers to the role of the Canadian Teachers' Federation in helping other countries with in-service teacher training.

D. Maximising Management Efficiency

80. Cost-effectiveness of educational resources can be seen in terms of optimising the relations between input costs and output benefits. Efficient management can affect the equation significantly.

81. An issue that receives considerable attention is that of centralised versus decentralised administration. Several countries have highly centralised systems of educational administration and many like Mauritius have strengthened this tendency by setting up centralised purchasing units for school supplies in order to benefit from large scale operations. On the other hand, a number of countries see merit in decentralised administration because it places responsibility for education more firmly in the hands of local communities. This contrast is more apparent than real because, in many countries, centralised and decentralised administration operate quite harmoniously together. For example, in Britain the Department of Education and Science is responsible for major policy matters relating to education, while local education authorities employ teachers and manage schools. Canada also harmonises the centralised aspects of federal administration of education with the autonomous character of provincial ministries of education and school boards.

82. In the management and administration of educational resources there are three areas of special significance:

- i. Management of teachers
 - ii. Management of buildings
 - iii. Management of equipment
-
- i. Management of teachers

83. Mergers between small schools are usually implemented to make more efficient use of teachers. In larger schools, efficient use of the skills and qualifications of teachers can usually be achieved by careful timetabling. In this way schools do not have under-employed teachers seeking to justify, as the Botswana paper remarks, why they should be permitted to teach even fewer periods. Instead, teachers are fully occupied teaching what they are best able to do and undertaking their fair share of other duties.

84. Researchers frequently comment on the relatively small part of the teacher's day that is devoted to activities that actually use professional skills. A number of countries such as Canada have sought to improve matters by employing teacher aides to carry out routine, non-professional duties. Teacher aides also make it possible to increase pupil-teacher ratios very considerably as Lesotho has discovered; but it is important for teachers to be given training in how to use teacher aides efficiently if the potential cost-benefits of this method are not to be wasted.

85. A further possible cause of economic inefficiency in the employment of teachers is over-qualification and its associated cost implications. It is clearly wasteful in economic terms to train a teacher in skills he does not need; all the more so if the teacher then receives higher pay. There is scope therefore for examining teacher training programmes in the light of actual school needs and offering in-service training for teachers whose specific duties call for knowledge of skills they do not yet possess.

- ii. Management of buildings

86. School buildings are often inefficiently used. For example, many are open for only six hours or less each day, five days per week, and forty weeks per year. This is a gross under-utilisation of a large capital investment. Country papers suggest various ways in which buildings can be more fully used, including shifts, the extended day, rotation of classes, shared use with the community and the hire of premises. The increased cost-effectiveness that these practices offer does not happen automatically; it results only from careful planning and good management. It is incumbent, therefore, upon all who have responsibility for the administration of school buildings to consider carefully how to make their use as cost-effective as possible.

87. Bangladesh proposes school mapping to ensure that schools are only built when absolutely necessary and Australia requires any agency wishing to put up a new school to provide proof of its viability. Certainly it is a serious waste of resources to build schools that are under-utilised.

- iii. Management of equipment

88. Considerable costs are incurred by holding spares for equipment used by schools, particularly where the equipment is sophisticated and expensive in the first place. The most direct way of reducing this element of cost is to standardise equipment as far as possible to avoid the necessity of carrying spares for a wide range of equipment. A spin off from such a policy is that it is easier to provide teachers with 'hands on' training in the use of this

standard equipment and to offer printed guides as Australia does on how to make the most of it in the classroom. The Bahamas, Bermuda and Mauritius each mention the benefits of bulk purchasing standardised items. In addition, repair and maintenance is easier to arrange if the range of equipment is limited.

89. By wise purchasing decisions and good management large sums of money can be saved. Good control of what is owned can also reduce losses through theft and breakage. It can also ensure that institutional equipment is used by teachers who know what it is best suited for and know how to operate it with care and skill. There is surely a message here that good management pays.

ALTERNATIVE LEARNING SYSTEMS

90. Three kinds of project reported in the country papers characterise the radical and experimental thrusts of countries searching for a system of education that can achieve its aims with a sustainable level of expenditure.

- A. Instructional Management by Parents, Community and Teachers
- B. Distance Education
- C. Computer Assisted Learning

A. Instructional Management at the Primary Level by Parents, Community and Teachers (IMPACT)

91. Two Commonwealth countries, Bangladesh and Jamaica, are currently testing this system for primary education pioneered in The Philippines and Indonesia. Under it, children in grades 4 to 6 are used for teaching children of lower grades using specially prepared modules based on the curricula and textbooks. The senior children learn in peer groups using the learning modules and receive instruction from the teacher. At the heart of the system are the learning modules devised on the principles of programmed learning and kept in the learning resource centre.

92. Because of the involvement of peers, parents and other members of the community in the process of instruction, IMPACT is able to raise pupil teacher ratios to four or five times what is normal in primary schools thus potentially reducing unit costs dramatically.

93. Because progress through the system depends on frequent prescribed tests which assess each child's competence in using what has been learned from the study modules, it is possible for children to progress at their own pace. This flexibility is of advantage to bright children and also to slow learners. It also benefits children who miss work because of temporary absence due to illness or claims on their labour by the family because, on their return, and with help from the teacher, they can "catch up" on what they have missed. On the other hand, it fragments education, and overstresses 'testable' knowledge and skills.

94. Because the learning resource centre is the only part of the system that requires a formal building, the children can learn in inexpensive shelters put up by parents and the community and thus save considerable capital costs.

95. By freeing the teacher from the many administrative and child minding tasks undertaken by teachers in conventional schools, the IMPACT system allows teachers to give individual attention to children and give much more time to the professional aspects of teaching.

96. The potential advantages of the system are many, though there are obvious difficulties to be overcome. It will be interesting to learn from Bangladesh and Jamaica after the trial period has been completed how they view its possible incorporation as a new way of providing primary education in their countries.

B. Distance Education

97. This system of educational provision has had phenomenal growth in recent years. Whether or not it can be used is not in doubt for distance education has been successfully used at primary, secondary and post-secondary levels in member countries.

98. Australia and New Zealand were pioneers of distance education at primary level. In Australia, the School of the Air provided children in 'the outback' or remote rural areas with two-way communication with first class teachers on a one-to-one basis. The Correspondence School of New Zealand provided all the trappings of a normal school, including school uniform, for children living in places that prevented them from attending the more usual kind of school.

99. Canada's Correspondence Education Branch of the Ontario Ministry of Education is reported in the country paper as the largest distance education enterprise in Canada and the fourth largest in North America offering secondary school courses in English and French to some 70,000 students in 161 schools.

100. Britain's Open University is probably the best known distance learning institution to offer degree courses but it is now joined by other universities around the Commonwealth offering degrees by correspondence.

101. The fact that distance learning can be used to teach a wide range of subjects including science and technology has been proved beyond doubt and country papers such as those of India, Kenya, Nigeria and Zimbabwe report on the extensive use of this medium for teacher training.

102. What of the future of the system? It seems inevitable that the system will continue to be used by countries to give access to people who for various reasons are unable to attend conventional educational institutions. At present, the cost (even using distance methods) of providing education for such people has restricted the use of distance education for this purpose largely to wealthier countries. But the cost savings that distance education offers where economies of scale can be found, mean that its use is likely to grow substantially not only in wealthy countries but in poor ones too. The fact also that its flexibility makes it ideal for providing crash programmes for up-grading teachers' qualifications as has been demonstrated with success in Kenya, Swaziland, Tanzania and Zimbabwe would seem to assure its future.

C. Computer Assisted Learning

103. The huge expansion of the use of computers in the four years since the Eighth Commonwealth Education Conference suggests that computers will assume an increasingly important role in the latter years of the twentieth century.

104. Are computers to be something that students study and master or are they to become part of the system by which they learn? There is not enough reported in the country papers to provide an answer to this question and these are early days of experimentation even in countries that already have made extensive use of computers in education. Britain reports very briefly on four years' experience of its Micro-electronic Education Programme (MEP). The aims of the programme are to investigate the most appropriate ways of using the micro-computer as a teaching aid and to stimulate the introduction of associated new elements in the school curriculum. Some 500 educational computer programmes have so far been produced, covering a wide range of subjects, including both the sciences and humanities, and at both primary and secondary level. By the end of the current financial year some 50,000 primary and secondary Advisers will have received training for MEP. There is already an operational information network comprising 14 regional information centres and four special Education Micro-electronic Resource Centres.

105. Canada has carried out a considerable amount of research into computer learning and the Provinces of Alberta and British Columbia have developed a computer network that enables universities in these provinces to use the system effectively for student studies.

106. India is actively engaged in investigating the potential of micro-computers in education as are other member countries such as Malaysia, Nigeria and Singapore. If these studies can convince governments that the computer is an effective teaching aid with great potential, then it is likely that the computer with its inexpensive microchip components, may play an increasing role in reducing the cost of educational provision. Perhaps the answer to the role of the computer as an alternative system for learning will be clearer by the time Commonwealth Ministers of Education meet again at the Tenth Conference of Commonwealth Education Ministers in 1987.