REVIEW OF ACTION TAKEN FOLLOWING THE FOURTH COMMONWEALTH MEDICAL CONFERENCE

Action by Governments

Paper prepared by the Commonwealth Secretariat from replies to the questionnaire sent to Governments in October 1975, supplemented by information given orally at the 1976 Pre-WHA Meeting in Geneva

DELIVERY OF HEALTH SERVICES IN RURAL AREAS

Planning the rural delivery system in the context of the national health plan, and providing sufficient centres and sub-centres to give national health coverage

Governments are devoting increasing attention to the expansion of basic health facilities in rural areas, and the majority of countries report further progress in this respect.

2. Rural health is being given top priority in *Nigeria.* Mobile clinics will bring doctors to serve the villages; at the next level will be the static clinic, then the health centre and then the rural hospital. The aim is to make health care available to 60 per cent of the population within 6 km. of their homes by 1980. The current development plan of *Sierra Leone* envisages a network of rural health centres with satellite health posts. A new type of health centre, with a strong maternal and child health care component, is being provided. Eight of these are to be completed, and 14 existing centres up-graded, by 1979; the work will subsequently be continued until all 147 chiefdoms are served.

3. In *Zambia* there are at present 608 health centres and it is planned to construct 500 more in the next decade. Under Zambia's decentralisation policy, the planning of health centres and sub-centres is the responsibility of the provincial administration, the central government providing qualified personnel, equipment and drugs. The aim of the *Tanzania* Government is to have one small 100-bed hospital for each district. This will supervise rural health centres, below which will be rural dispensaries and village health units. The target is 25 new health centres and 100 new rural dispensaries each year. It is hoped to have 1780 dispensaries, one for every 9,000 people, and a maternal and child health clinic in each dispensary. At village level, services are to be provided by local first-aid workers.

4. *Lesotho's* 88 rural health centres are being built or up-graded to make possible full delivery of both preventive and curative services. It is proposed to staff them with nurses who have been trained in extra skills as "nurse practitioners" or "physician extenders". Visits from district centres to rural centres are undertaken. In *Botswana* eight health centres, 50 clinics and 200 health posts have been constructed. The provision of sufficient centres and sub-centres in *Malawi* is proceeding in defined phases under the national plan, the standard of rural health services is being improved in each district, and mobile services are being increased. The plan provides for health posts serving 2,000 people, sub-centres serving 5,000, and health centres, with a doctor in charge, serving 15,000. A referral system is operated to hospitals above this level. Health projects have been included as components of four large agricultural development schemes in Malawi. In *Uganda* district hospitals serve administrative districts with a population of 100,000, and are being established where there were formerly only health centres. Particular emphasis is being placed on maternal and child health care services.

5. *Malaysia* is converting its present system of health care delivery to a two-tier system in which there will be a health centre and three or four rural clinics, under the administrative charge of one professional team, serving a population of 15,000–20,000. Fifty-three existing sub-centres are to be converted to health centres by 1980 and existing midwife clinics will be converted to rural

clinics, each providing services for 4,000–6,000 people. Until the remoter areas are adequately covered, they will be served by 50 mobile teams, each led by a medical officer. Team work is regarded an important element in *Ghana,* where basic health services, delivered through health posts and health centres, provide for the needs of 70 per cent of the population.

6. In some of the smaller island countries, such as *Malta,* rural health services do not present a particular problem, although planning takes into account relatively out-of-the-way areas. *Tonga* at present has seven rural dispensaries, four of them with small in-patient wards of 6–12 beds. The current development plan provides for five more dispensaries and four more in-patient wards by 1980. Each dispensary is to be staffed by a doctor or medical assistant and one nurse, and will be provided with transport. In the *Bahamas* a formal health plan has not been elaborated but almost all existing health centres and sub-centres are now fully staffed with doctors, community nurses and other public health staff. An additional health centre has recently been completed in *Barbados* and a further centre is planned. In *Fiji* a helicopter flying doctor service is being developed.

7. The dispensaries in rural areas of *Mauritius* are now fully integrated with the hospitals and manned by full-time staff attached to the hospitals. Visits by senior specialists and consultants to rural areas are combined with a day-bed service and relieve the pressure on hospitals. The object is to bring medicine to the people, rather than the people to medicine. The current five-year plan provides for 50 health centres which will offer comprehensive health care. Mobile dental units have been dispensed with: as 18 dentists are now employed, it has become practicable to establish static posts. In *Cyprus,* which faces special problems, two new health centres are to be opened in rural areas to serve the needs of displaced people, and a new type of health centre is to be introduced between the hospital and the primary centre. This will be manned by two doctors and a paediatrician and will make possible a 24-hour service for local people. Specialists visit rural centres, laboratory services are being improved, and a school medical service is planned, to improve health care facilities for children in rural areas.

8. Funds from the World Bank and the Inter-American Development Bank have been provided for the improvement of 38 health centres, the construction of four maternity units and the establishment of community health training schools in *Trinidad and Tobago.* The number of health centres in the rural areas will be adequate by 1978, and the facilities and the quality of care and service rendered by health teams are being improved. A 24-hour accident and emergency service is being provided at selected health centres and also at district hospitals, where the in-patient service is also being improved, and a community mental health programme has been developed to provide mental health care for all sections of the community. In *Jamaica,* another country where primary health care is receiving particular attention, a special task force has assessed the number of centres and sub-centres required to service the whole island, and full details of additional buildings and personnel required have been worked out.

9. Eighty per cent of *India's* large population live in villages, and community health is receiving the highest priority. The Government is evolving a new system based on people's minimum needs, and is providing integrated health care, both curative and preventive. The country has been divided into some 5,000 blocks, each with about 80,000 people. Each block is to have a primary health centre with a doctor, and 6–8 multi-purpose rural centres each serving 5,000–10,000 people. Above the primary level will be the rural hospital and then other hospitals. In *Bangladesh* each of the 356 rural thanas (sub-districts) is being provided with a small hospital with about 30 beds, and 152 rural health centres and 144 sub-centres have been completed. Some 12,000 people have been employed on malaria eradication and smallpox vaccination and a further 20,000 are engaged in family planning services. Their work is supervised by medical assistants, who receive two years' institutional training and one year's field training. In *Sri Lanka* maternity homes are being more fully utilised to provide treatment for women and children, and where space is available male patients are also being treated, without additional staff being involved.

10. Two new health centres have been built in rural areas of *New Zealand* since 1974. In *Britain,* where the national health service provides comprehensive health care coverage, a special medical service exists to cover the remote highlands and islands of Scotland. The Government of *Australia*

is advised on national health care priorities by a Hospitals and Health Services Commission, which places particular emphasis on the development of community-based service and the sponsoring of rural health services. Financial assistance to State Governments and the Northern Territory for the expansion of Aboriginal health programmes has been doubled since 1973/74. A shortage of trained manpower is reported, however, and a need for training to reorientate professional and managerial personnel towards a health care delivery system and social conditions vastly different from those in which they were originally trained.

Integrating the rural health delivery system into the overall rural development programme

11. Most countries are adopting a co-ordinated approach to the improvement of conditions in rural areas, with health care as an integral part of development programmes. In *Malaysia,* for example, activities of the Ministry of Health are co-ordinated with the ministries responsible for agriculture, education, information and youth, in connection with the applied nutrition programme, the school health programme, and environmental health. The improvement of rural health in *Cyprus* is promoted as part of the general development of rural areas. The plan to establish 50 rural health centres in *Mauritius* forms part of the rural development programme being implemented under the aegis of the Ministry of Economic Planning and Development.

12. *Sierra Leone* has established community development committees, both at ministerial and official level, on which all ministries concerned with rural development programmes are represented. At local level community development officers work in close association with the health team, local government bodies and the private sector. Both Government and Party in *Zambia* are at present engaged in rural reconstruction, in which health activities form an important part of development projects. Under *Botswana's* accelerated rural development programme, clinics, health posts, schools, roads, boreholes and staff housing are constructed as parts of an integrated scheme.

13. The inclusion of a health component in *Malawi's* national rural development plan is now established policy, particularly where agricultural projects are concerned, and the health inspectorate's programme of well protection and improved sanitation in villages is being further expanded. The malaria and smallpox eradication programmes in *Bangladesh* have been co-ordinated with the rural health delivery system and with other rural development projects. Where settlement schemes are undertaken in *Sri Lanka,* a dispensary is built as part of each complex.

14. In *Australia* regional health offices are being set up in some States as part of a wider programme of regionalisation which will assist the development of rural areas. The water and sewage authority in *Trinidad and Tobago* is represented on committees established within the Ministry of Health dealing with communicable diseases, environmental sanitation and pollution control, and inter-ministerial committees co-ordinate activities concerning nutrition and the care of pre-school children. Community health aides work in rural areas of *Jamaica* and dental nurses, with two years' training, are involved in the treatment of rural schoolchildren.

Standardising drugs and medical equipment used in rural health centres

15. In some member countries – *Bangladesh, Botswana, Grenada, Lesotho, Malawi* and *Malaysia* are examples – drugs and equipment used in rural health centres are already standardised. In others, such as *Sierra Leone,* the official standardised lists have become out-dated and need revision. UNICEF supplies to centres in Sierra Leone are based on a standard list, however, and this is to be used as the basis for a fresh official list. *Botswana* uses UNICEF equipment kits for clinics and health posts, and standardised equipment in most rural health units in *Malawi* is supplied by UNICEF. A standard list of drugs which may be prescribed by staff at health centres and sub-centres has been in use in Malawi for some years and a similar list for health posts has now been prepared. *Sri Lanka* has a standard list of drugs available for use by assistant medical practitioners. In *Malta* a hospital formulary and a single general practitioners' list ensure standardisation of drugs issued from government clinics, and standard equipment is being ordered in bulk for new health projects.

16. There remain a number of countries where standard lists for rural centres have yet to be introduced, but in most of them measures to bring about standardisation have already been initiated. The Ministry of Health of *Zambia* has a committee of experts for this purpose, whose purview also extends to hospitals. In *Trinidad and Tobago* the district medical formulary already in existence is being amended for use in all health centres. A national pharmacoepia for health centres has been prepared in *Jamaica* and is to be introduced shortly. In most countries some degree of standardisation is achieved through bulk purchase and distribution by the central medical store, which often mades up certain medicines and applications. Distribution of drugs to health centres in *Trinidad and Tobago,* at present done direct from the central medical store, is to be decentralised and four sub-stations to serve rural communities are planned.

17. In *Britain* registered medical practitioners are free to prescribe and use any drugs they consider necessary and standardisation is not considered possible. In *Australia* private medical practitioners working in rural health centres similarly determine their own drugs and equipment. Government health authorities in Australia develop their own standards of equipment and drugs, which are followed by the practitioners they employ. This approach is also followed in the delivery of health care to remote communities, particularly where the flying doctor services are involved. Standard kits are supplied to various groups and individuals who are in radio contact with these services.

Incentives to doctors to practise in rural areas, and to make rural practice more attractive to health personnel in general

18. Doctors in government service are posted to rural areas in some countries, such as *Zambia* and *Tonga,* in the normal course of duty, without any special incentives being offered. In the smaller countries, particularly in island countries, the problem often does not arise. Where special incentives are found necessary, these take a variety of forms. Special allowances are paid for service in rural areas in *Cyprus;* there are education allowances for children separated from their parents in *Sierra Leone;* free furnished accommodation and either a car or a mileage allowance for duty travel are provided in the outer islands of the *Bahamas.* A special rural allowance is proposed in *Lesotho* and living accommodation is being improved to bring it into line with urban standards. Such ways of overcoming rural isolation as bringing professional teaching to health centres, arranging visits to rural centres by senior departmental officers, academics and Ministers, and creating machinery to supply doctors in remote areas with a regular flow of up-to-date professional information, which were suggested at the Colombo Conference, were mentioned in few replies received, however.

19. In *Malaysia,* where quarters are provided for medical officers at health centres at a nominal rent, short-term rural postings for junior medical officers are generally regarded as part of the two-year compulsory service on first registration. These rural postings give medical officers priority when scholarships for postgraduate courses in public health at a local university or for MPH or MSc courses at universities abroad are awarded. Service in rural areas is also a qualification taken into consideration when a post of medical officer of health is being filled. Special allowances are paid to medical officers of health in respect of a postgraduate qualification in public health or of practical experience. Short courses and seminars are held for both professional and sub-professional staff, to encourage the right orientation and motivation.

20. In *Sri Lanka* rural service is given credit in the points system under which training appointments are given to medical officers and in the award of scholarships and fellowships. After their one-year internship, doctors in *Bangladesh* are sent to practise in rural areas for a minimum period of one year. Monetary incentives are being tried in *Jamaica,* but their effect is likely to be weakened by inflation. In *Trinidad and Tobago* it is hoped that the new well-equipped health centres and improved district hospitals will encourage service in rural areas. Those who choose this field are eligible for postgraduate scholarship awards in community medicine. More government quarters in rural areas are being constructed. Public health nurses are now eligible for government loans to purchase cars and for duty travelling allowances.

21. The Medical Association of *Malawi* has held weekend seminars, to which rural practitioners were specially invited, to discuss practice in rural areas, and in 1975 each district medical officer held a seminar for his auxiliary staff, with the purpose of fostering team spirit. The Malawi Minister of Health, accompanied by officials from his Ministry, has visited health centres to meet district doctors and health staff. Four senior medical officer posts for rural areas have been created and have been filled by promoting serving officers. Funds for better housing for staff at rural centres are being provided.

22. *New Zealand* has introduced a variety of incentives to encourage practice in rural areas. These include loans to local authorities who wish to provide doctors with housing and surgery accommodation, rural practice bonuses and higher-rate mileage allowances for doctors, assistance towards the employment of registered nursing staff, subsidy for the employment of a locum tenens, and grants to junior medical officers electing to take up rural practice. Rural service is counted as qualifying service for bursaries for postgraduate study, and postgraduate study leave (two weeks on full pay for each year of special area service) is given. Mileage allowances are paid for attending clinical meetings and study courses at base hospitals.

23. Similar incentives have been employed in *Australia* with varying degrees of success. Housing and surgery facilities have been made available at minimal cost, financial assistance is given for the education of children and for removal expenses, locum relief is paid, and taxation incentives are provided. Rural doctors are assisted to obtain higher qualifications and to attend postgraduate conferences and seminars and courses in Aboriginal languages. Subsidies are paid to supplement income and a minimum level of income is guaranteed. There are similar financial incentives for general practitioners to practise in certain areas of *Britain,* including sparsely-populated or otherwise unattractive rural areas. Payments are made from a rural practice fund to bring the remuneration of rural practitioners in line with that of other general medical practitioners, in view of the fact that the rural practitioner cannot take as many patients as his urban colleague.

Legal protection for health staff carrying out duties traditionally performed by doctors

24. No extension to health staff of legal protection against the consequences of malpractice is revealed in replies received, except perhaps in *Barbados* where the Para-medical Profession Act 1975 regulates the registration and practice of such personnel. In *Lesotho* the Dangerous Medicines Act already gives the Minister of Health power to allow certain categories of the health personnel to perform certain acts normally performed by qualified doctors. In *Zambia,* although no special legal protection is given, certain categories of staff are registered with the Zambia Medical Council. In *New Zealand* all staff automatically take out insurance to provide legal protection.

25. In practice, however, governments accept a measure of responsibility for the actions of their employees. A medical assistant in *Malawi* is authorised to perform a necessary operation as best he can when a doctor is not available, and he is protected against legal action so long as there is no proof of negligence. The Government of *Trinidad and Tobago* accepts liability for injury suffered by a patient while under treatment and *Jamaica* accepts a similar responsibility.

26. Under existing legislation in *Cyprus,* health staff cannot carry out duties traditionally performed by doctors, and in *Australia* there is no move towards the transfer of any such duties to staff who are not medically qualified. In *Britain,* however, the possibility of transferring to paramedical staff some work traditionally performed by doctors, and the consequent need for legal protection, are under consideration.

Training in health care management and administration

27. The only training courses in management and administration specially designed for senior professional staff which have been mounted in a developing member country so far appear to be the West African regional courses held in Ghana in 1975 and 1976, mentioned in the reply of Sierra Leone and referred to in more detail in the report on action by the Commonwealth

Secretariat. Apart from such general courses in management as those held at the University of the West Indies and at the Institute of Management at the University of Botswana, Lesotho and Swaziland, staff have had to be sent to developed countries for training in this field. This is a further indication of the need to develop health management training in the developing countries themselves.

28. *Malaysia* sent two senior professional staff on a one-year health management course in Australia in 1975, which was part of a postgraduate training programme sponsored by WHO, and a senior staff member went on a two-month course in health planning in Manila. Four medical officers from *Mauritius* received training in health care management in 1975 and another in 1976. Several senior medical assistants from *Zambia* are receiving six months' training overseas in hospital administration, and a course for records officers in *Jamaica,* attended by trainees from Barbados and elsewhere, included a management element. A number of countries have sent personnel to Britain and elsewhere for training in hospital administration. Management has been part of the postgraduate training received overseas by medical administrators from *Malta.*

29. Some countries have arranged in-service training in management for medical and health staff. *Bangladesh* has such arrangements, *Sri Lanka* has held national orientation courses for hospital administrators with WHO support, and *Trinidad and Tobago* has a central training unit which offers in-service short management courses which are attended by medical professionals and allied health staff. A two-month course for serving medical record officers has also been held in Trinidad and Tobago. Short courses have been held at *Malaysia's* Public Health Institute to develop administrative and technical skills of staff carrying out national health projects. *Barbados* is planning to hold short workshops on various aspects of health management.

30. Health services administration in *Australia* is developing as a separate career grouping, and an increasing number of degree courses, primarily based on general administrative theory and practice but with particular emphasis through elective units on health services, provide the academic basis. Australia's State health and education authorities also operate training schemes in management for various grades of health staff, both centrally and in the field. *New Zealand* has introduced two further postgraduate qualifications: a diploma in health services evaluation and a diploma in health administration. The holding of a diploma in public health is a prerequisite for both courses; places may be available for students from other countries.

31. In *Britain* training in health care management and administration is included in the professional training of doctors and para-medical personnel, and post-entry management training is available. Short courses in national health service management are commissioned by local health authorities and by the Department of Health and Social Security. Most courses, for managers from supervisory level upwards, are provided at colleges of technology, polytechnics or special units at universities. Courses based on Britain's national health service are not generally considered suitable for personnel from other Commonwealth countries with dissimilar systems, but several training establishments make special provision for students from overseas.

Participation of voluntary workers and the community at large in the planning and establishment of the rural health delivery system

32. Although community participation is in general welcomed and encouraged, the replies received do not point to any dramatic developments but rather to progress on a modest scale.

33. In some cases participation is through the medium of multi-purpose committees at various levels. In *Botswana* the community is involved through district and village development committees, and through the participation of church missions in the establishment of rural health facilities. District action committees in *Malaysia,* of which medical officers of health are members, provide opportunities for community involvement, and the use of assistant district officers to co-ordinate community development projects is increasing. Village development committees are actively involved in health projects and campaigns to promote environmental sanitation, improved nutrition, school health and malaria eradication. Interest and co-operation is sought in *Sierra Leone* through Revolutionary Councils or Committees which include officials, chiefs, elders and

members of the public. In *Zambia* voluntary workers and the community are involved in the planning and establishment of the rural health delivery system through the Party organisation. Local communities in *India,* and especially village heads and other leading persons, are involved with the rural health centres. Local communities in *Malawi* participate in the planning of each new health project and the needs of each area are assessed in consultation with those living and working there. A community request for a new health sub-centre or a mobile clinic is discussed by the district development committee before being passed through the district medical officer to the Ministry of Health where it is considered in the context of the national health plan.

34. In *Australia* a special seminar was held in 1975 by the Hospitals and Health Services Commission to define the problems of rural health services and suggest solutions. Interested people from local areas were among those who took part and over 300 submissions were received in response to an advertisement in the national press. A discussion paper was subsequently distributed and comments on this were considered before a final report was prepared. Australia reports increasing recognition of the need for greater involvement of Aboriginal communities, both in remote areas and in the towns. In some places Aboriginal communities are establishing health care facilities with the aid of voluntary contributors and support from the Government.

35. Local committees specifically concerned with health needs have been set up in some member countries. Health committees have been selected by communities in *Lesotho* to advise the Minister of Health on local needs, and they have been encouraged to appoint unpaid health motivators. In *Britain* community health councils have been established in all health districts (both rural and urban). Appointed mainly by local government and local voluntary organisations, their members are unpaid and their role is to represent the interests and views of the public. These councils must be consulted on all local health service developments.

36. The replies to the questionnaire give a number of examples of community activities to improve health services, and of how these activities are encouraged. In *Tonga* local people have built maternal and child health clinics and in-patient wards, and there has also been community participation in connection with village water supplies and home improvements. Rural communities in *Cyprus* have been encouraged, through their local authorities, to provide land for rural health centres and consulting rooms for visiting doctors. In *Trinidad and Tobago* the participation of voluntary workers is encouraged through local committees, community centres and village councils; the assistance of community groups in *Bangladesh* and *Grenada* is enlisted through health education; and in *Jamaica* voluntary activities have been developed in certain hospitals. An interesting contribution is provided by voluntary groups in the *Bahamas,* who augment equipment at peripheral health posts ranging from fluroscopes to haemoglobinometers, and an active sickle cell committee aims to screen for AS and SS groups, with treatment and genetic counselling in view.

37. The work of voluntary agencies is referred to in several replies. *Malawi* reports excellent co-operation from such agencies, which are encouraged to assist with the establishment of services within the framework of the national health plan. Voluntary agencies are also utilised in *Bangladesh.* In *New Zealand* a special consultative group which includes members of all the major voluntary agencies and representatives of statutory agencies in the health field, has been set up to study and make recommendations on how the activities of these agencies can be co-ordinated. Voluntary agencies play an important part in the welfare of patients in *Britain* by complementing the work of paid staff in providing comfort and amenities. The Government makes grants to the headquarters of some national voluntary organisations and area health authorities make grants to organisations providing a service locally.

Research on the contribution of indigenous systems of medicine

38. There is little reported in this connection. In *Botswana* the university is engaged in research into indigenous medicine in collaboration with an American institute, and in *Australia* there has been some private research, largely through the universities. Interest is being shown by the Australian authorities in using some aspects of indigenous medicine and in enlisting the co-operation of traditional healers for the provision of better health services for Aboriginal communities in isolated rural areas.

39. Traditional birth attendants are widely used in many countries. In *Sierra Leone,* where they are estimated to deal with three-quarters of total deliveries, regular training courses, with incentives to encourage attendance, are organised for them to promote safe practice. The high incidence of tetanus neonatorum is thought to be the result of indigenous methods practised, however, and a tetanus immunisation programme is being carried out over a two-year period which began in January 1976.

IMPACT OF URBANISATION, INDUSTRIALISATION, MECHANISATION AND POLLUTION ON HEALTH PROBLEMS

Provision of piped potable domestic water supplies and safe excreta disposal

40. All replies received report progress with the extension of domestic water supplies and arrangements for sewage disposal, in some cases through major projects which have required considerable capital investment, in others through more modest improvements in towns and villages.

41. An additional 1¼ million people in urban areas of *Malaysia* were supplied with treated piped water during the period 1971/75, bringing urban coverage up to 87 per cent. Rural access to safe water was increased to 36 per cent, nearly half a million people having been covered. Some 62 per cent of the population now have safe excreta disposal facilities. *Grenada's* reply mentions two projects: the Annadale water supply system and the Grand Anse/Morne Rouge sewerage feasibility project, and in the *Bahamas* negotiations for an international loan to improve water supplies and sewerage are reported to be in their final stages. *Barbados* reports a further extension of domestic supplies; water is chlorinated and regularly examined for bacterial contamination, and a sewerage system for the capital is planned. Seven existing and three new projects for treated water supply systems in *Sierra Leone* are expected to reach completion by 1979, and the Guma Valley Water Company is increasing its delivery by constructing a new reservoir, treatment works and pipes. Five village water supply schemes and 20 local provincial water supply projects, labour for which is largely provided by local people, are also to be undertaken. The Sierra Leone Government plans to establish a National Water Resources Agency to co-ordinate the development of water resources.

42. Piped water supplies are being extended in towns, villages and rural areas of most countries reporting, and the introduction of pour flush water sealed latrines is on the increase. *Tonga,* where 60 per cent of the people now have access to safe piped water supplies, hopes that all villages will be supplied by 1980 and that the sewage disposal programme will by then cover 50 per cent of the population. *Mauritius, Cyprus, Zambia* and *Lesotho* are further examples of countries where similar progress is being made. In *Botswana* research is being conducted, with the assistance of Canadian funds, into an inexpensive and culturally acceptable method of excreta disposal.

43. A programme for the sinking of tube-wells in *Bangladesh* with the help of UNICEF, aims at one well for 200 persons; a sanitation project for the construction of latrines is also being undertaken. Most of the rural population of *Malawi* use pit latrines and get their water supplies from wells, boreholes, rivers or the lake; only about 150,000 people have piped water. Almost all the towns now have piped water and water-borne sanitation, however. Nearly 100,000 more people in *Jamaica* have had their houses connected with piped water supplies since 1974, and some 20,000 more with standpipes, and the number of people served by public sewerage has increased by 37,000. The vast majority of dwellings in *Malta* are now connected with public sewers.

44. In *Trinidad and Tobago,* where potential demand for piped water is estimated at 80 million gallons a day, 65 million gallons are currently being supplied and improvements being carried out will supply a further 7 million gallons. The piped supply is supplemented by truck-borne water in rural areas. The main towns have sewerage systems and the septic tank and soakaway system is used where no sewerage exists. In *Singapore* 91 per cent of dwellings, including all public flats, now have piped water and the remainder are supplied from standpipes and wells. Water catch-

ments are strategically located and measures are taken to prevent pollution from domestic, industrial and farm wastes. About 72 per cent of Singapore's population is now served with modern sanitation, and sewerage is being extended to urban renewal projects, public housing and industrial estates.

45. *Sri Lanka* is preparing, with WHO assistance, a national plan for safe water supplies and sanitary excreta disposal, and has had a scheme in operation for some years to encourage the construction of latrines in rural areas by the payment of subsidies. The amounts paid were increased in 1975 and families with pre-school children can obtain a free issue of a squatting plate and syphon for water-seal latrines. The Water Supply and Drainage Board, established under the Sri Lanka Ministry of Local Government in 1975, provides local authorities and other agencies with financial assistance for piped water supplies, sewerage and drainage. It also carries out investigations, prepares designs, constructs, and in some cases operates and maintains, water supply schemes. Eighteen major water supply schemes, eight surface drainage schemes and ten UNICEF schemes are under construction in Sri Lanka, all of them maintained by the Board.

46. The more developed member countries also report progress. In *Britain,* where sanitation facilities have been installed since the mid-nineteenth century, improvements are being continued, and *Australia* is further extending piped water supplies to peri-urban areas and improving the quality of water supplied, in some areas by fluoridation. Australia is also giving attention to the quality of sewage discharged into the sea, and its National Health and Medical Research Council is developing guidelines for the safe disposal of human excrement from trains, caravans and other vehicles. *New Zealand* reports that 84 per cent of its 3 million people are now provided with water from public supplies and over 93 per cent of its 822,500 dwellings now have piped water. The number of people supplied with water of unsatisfactory quality (mostly small communities) has been halved in the past five years. At the beginning of the century the mortality rate from typhoid in New Zealand was 400 a year; morbidity is now down to 10–40 reported cases annually. This improvement has been assisted by government subsidies to local authorities for the provision of water supplies and sewerage. Over half the population are now supplied with fluoridated water. Over 80 per cent are served by sewerage systems and most of the remainder live in houses served by septic tanks, which are now being discouraged because of the danger of polluting subsoil water. There are water closets in 97 per cent of all dwellings in New Zealand.

Measures to deal with the health problems of shanty towns

47. Low-cost housing projects – countries providing examples include *Grenada, Barbados, Lesotho* and *Mauritius* – and the prevention of uncontrolled housing development (*Sierra Leone, Tonga*) are the main ways adopted to deal with the shanty town problem. In *Botswana* improved traditional housing constructed of local materials is now accepted in towns as a means of avoiding the growth of shanty towns. In *Zambia,* where shanty towns exist health conditions are being improved by the provision of potable water supplies and latrines. Health problems in refugee camps in *Cyprus* have been mitigated by the provision of water and waste disposal arrangements.

48. In *Jamaica* housing programmes are the responsibility of the Ministry of Health and Environmental Control. *New Zealand* has prevented the development of shanty towns by strict application of building and planning legislation. In *Malawi* the problem is tackled by strict local authority supervision, by demarcation of rentable plots with minimum building standards and by provision of basic facilities such as water supplies and roads. *Australia* concentrates on the provision of alternative accommodation, better environmental hygiene and personal health services. Similarly in *Trinidad and Tobago:* where shacks have been demolished low-cost housing has been constructed to accommodate those displaced. Slum clearance is also being undertaken in *Sri Lanka* and living conditions are being improved by the installation of sanitary facilities, standpipe water supplies and electricity. Besides providing low-cost housing, the Sri Lanka authorities are offering more facilities for house-building by people themselves and through co-operatives.

49. *Singapore* has for some years been engaged on a massive building programme, through its Housing and Development Board and Urban Redevelopment Board, to overcome the overcrowded and insanitary conditions resulting from previous unplanned development. Some 211,000 housing units (flats) have been constructed to house over a million people, 50 per cent of the population. By 1980 the total is expected to have risen to 370,000 units housing 70 per cent of the estimated population. The units are provided with electricity, piped water, modern sanitation and refuse disposal arrangements. Rentals are kept low to help the lower income groups, and if people wish to purchase their flats they can use their Central Provident Fund contributions for this purpose.

Safeguarding the environment against pollution

50. A number of countries have taken special action to safeguard the environment. *Malaysia* has established an Environmental Health and Engineering Unit with the assistance of a WHO consultant and the responsibilities of the Ministry of Housing and Environment include specific requirements under the Environment Quality Act 1974. The establishment of an Industrial Health Unit is being contemplated in *Sierra Leone.* In *Mauritius,* a section has been set up in the Ministry of Agriculture to deal with environmental matters, and industrial estates are planned with proper regard to infrastructure, including waste disposal, in consultation with UN agencies. New environmental health legislation is being drafted in the *Bahamas* and a working group is studying a chemical spill contingency plan. In *Cyprus* and *Barbados* advice on the prevention of pollution is obtained during the planning stage of development projects. The UN Environmental Programme has been consulted by *Zambia* on the environmental aspects of development projects, and it is involved in the Sashe copper/nickel mining complex in *Botswana.* Botswana has legislation to prevent air pollution and has appointed an air pollution officer. *Bangladesh* has an Environmental Pollution Control Board, which maintain liaison with national and international bodies. There is legislation in *Malta* for the control of air and marine pollution and pollution from refuse and sewage.

51. In *Trinidad and Tobago* a National Environmental Sanitation Committee and a Pollution Control Council have been formed. A seminar sponsored by the Council and the country's Management Development Centre was recently held on industry and the environment. Draft proposals for environmental protection legislation have been prepared, an oil spill contingency plan is being formulated, and solid waste management is being studied. An environmental control programme, to be directed by an executive authority, is being developed with the assistance of a consultant engineer secured through the Kaiser Foundation. In *Sri Lanka* a special committee appointed by the Government has recommended the establishment of a representative central authority for environmental management, under the Ministry of Planning and Economic Affairs, with statutory powers to deal with pollution of various kinds, and also with the cultivation of medicinal plants, the management of inland fisheries, hygienic methods of sewage disposal and the eradication of slum dwellings. The UN Environmental Programme has been consulted by Sri Lanka about environmental problems.

52. *Jamaica* has taken steps to safeguard rivers from pollution by factories, and protection of water catchments in *Singapore* by controlling the discharge of waste from houses, factories and farms into streams has been given much attention in recent years, during which rapid industrialisation and urbanisation have resulted in a steady rise in the demand for water. An industrial water treatment plant operated by the Singapore Sewerage Department has been established, the sewerage system is being improved, and a Water Pollution and Drainage Act was passed in 1975. Arrangements for the disposal of solid wastes are also being improved, and an incinerator capable of dealing with 1200 tonnes of refuse daily is expected to be in operation in 1978.

53. Comprehensive legislation to prevent pollution is in force in *New Zealand.* Discharges of sewage and industrial wastes are regulated and special measures have been adopted to protect lakes. Air pollution is strictly controlled and there is close co-operation between local authorities and the Ministry of Health in the licensing of the more complex discharges. There is also control of the disposal on land of substances likely to pollute natural waters, and the disposal of used containers of poisonous substances. The codifying of the control of noise is at present under study. New Zealand participates in UN Environmental Programme activities and has a Minister for the Environment, and a Commissioner who reports to him, to co-ordinate the activities of

government departments which may affect the environment. Environmental impact assessment procedures, which require the preparation of reports for public comment, are followed for major works.

54. The *Australian* Department of Health provides advice in the early stages of planning for urban, industrial and agricultural projects, and recent legislation requires "impact statements" on such projects – which have lately included a radiation laboratory, a uranium mine, and the atmospheric effects of high-flying supersonic aircraft. Working parties are examining various aspects of the monitoring and control of air pollution, including that from motor vehicle exhausts, and pollution from metals, pesticides, agricultural chemicals and radio-active wastes is also being studied. *Britain* has a Secretary of State for the Environment whose responsibilities include housing, local government, public building and works, and there are numerous schemes to monitor pollution, involving government departments and authorities, local government and universities. The Royal Commission on Environmental Pollution issues regular reports and recommendations. Britain has monitoring obligations under the UN Environmental Programme as a contribution to the global Earthwatch Programme.

Preparation of health education material demonstrating the connection between dirt and disease, and its inclusion in school curricula

55. Health education units have been established by Ministries of Health in a number of countries, including *Sierra Leone, Tonga* and *Grenada.* The unit in *Malaysia* has prepared pamphlets and posters dealing with dengue haemorrhagic fever and these are distributed to schools. *Malawi's* health education service unit produces and distributes similar educational material. *Jamaica's* bureau for health education participates in school programmes and demonstrations. *Botswana's* health education unit produces visual teaching aids and the curriculum for certain target groups in schools is being revised to include health education.

56. Lessons in hygiene are included in primary and secondary school curricula in *Bangladesh* and posters and a leaflet on dirt and disease are used. *Zambia, Cyprus* and *Sri Lanka* are further examples of countries where health education is part of the normal curricula. In *Malta* it is imparted particularly through teaching on civics, social subjects and home economics. In *Trinidad and Tobago* great emphasis is placed on cleanliness in an effort to combat the spread of such diseases as gastro-enteritis and scabies, and a series of short films is being produced. Health education is included in the health science syllabus for primary school-teachers in *Mauritius*, and under human and social biology for teachers training in *Singapore,* where topics like "health and disease", "cleanliness in home, school and public places" and "infection and disease" are included in the primary and secondary school syllabuses.

57. *Sri Lanka* has a Joint School Health Committee composed of officials of the Ministries of Health and Education, and teachers are specially trained in health education. The health education officer in *Barbados* works with teachers and youth groups, and there are regular education programmes for the general public. Medical officers and public health nurses in *New Zealand* pay regular visits to schools to help with health and hygiene teaching; teachers also receive support from health education officers of the Ministry of Health and are provided with a special handbook. In *Australia* health education is the responsibility of State and local authorities, and subjects dealt with in material prepared for use in schools include the prevention of micro-biological contamination of foods. The first national seminar on school health in Australia was held in 1975. In *Britain* the responsibility for health education is left to each school, but the Department of Health and Social Security produces educational material including short films.

58. Some countries have conducted special campaigns on particular health problems and in almost all there is health education through the media of mass communication. *Singapore* ran a national campaign in 1975 on food-borne diseases and nutrition and a second campaign in 1976, on communicable diseases including tuberculosis, malaria, leprosy, sexually-transmitted diseases and dengue haemorrhagic fever, included exhibitions, intensive mass media publicity, and the participation of schoolchildren in poster and essay competitions. In *Mauritius* talks are given on

radio and television, and also to village councils, with the object of heightening community consciousness of the relationship between dirt and disease, and posters on scabies and malaria, the control of flies and mosquitoes and the importance of clean domestic conditions are distributed. In *Cyprus* leaflets on basic hygiene and other health matters have been distributed in refugee camps.

Promotion of a co-ordinated approach to health problems

59. Interaction of the Ministry of Health with other ministries is referred to in most replies received. In *Mauritius* all long-term health projects are co-ordinated with other ministries through the Ministry of Economic Planning and Development, and a similar approach is adopted in *Zambia, Lesotho* and *Barbados.* Private organisations are also involved, as in *Lesotho* and *Cyprus. Sierra Leone* sees the need for permanent standing committees and a national board of health.

60. Examples of a co-ordinated approach to particular problems are provided by *Malaysia* where the Ministry of Health collaborates with the Public Works Department in maintaining the quality of potable water supplies and in fluoridation, and by *Sierra Leone* where ad hoc committees are formed to deal with specific topics and where the National Leprosy Board and the National Committee on Vital and Health Statistics include representation from both public and private sectors. The Ministry of Health of *Mauritius* works closely with the Ministry of Agriculture on pesticides and with the Ministry of Fisheries on health aspects of fish. In *Grenada* relevant ministries and agencies are represented on the National Child Nutrition Committee. A planning officer in *Botswana's* Ministry of Finance co-ordinates the planning of all ministries, including that of Health; there is also a National Council on Rural Development, with the Vice-President as Chairman, and the Ministries of Health and Local Government have a joint council on family planning and rural health. The co-ordinated approach to health improvement promoted by *Malaysia's* National Co-ordinating Committee in Community Development has included a food and nutrition project and an anti-dengue campaign. Also in Malaysia, the Joint School Health Committee sponsored a national school health conference in 1975 to review the school health programme initiated in 1967.

61. The Board of Health in *New Zealand,* established under the 1920 Health Act, makes recommendations to the Health Minister and a number of advisory committees operate under the same legislation. The Department of Health is represented on inter-departmental committees, statutory boards and councils, and its field staff participate in the activities of local pollution control authorities. A Health Council advises the Government of *Sri Lanka,* where the Health Ministry works in co-ordination with the Ministries of Education, Labour and Local Government. The Council of Health in *Malta,* which advises the Ministry of Health on all health matters, has recently been reconstituted and its functions revised. In *Britain,* where the national health service provides a comprehensive health service for all members of the community, government policy has been to develop an integrated response to community needs for health and social service care through the Department of Health and Social Security. Joint consultative committees, established in 1974, provide liaison between Area Health Authorities and local social service departments to encourage co-ordination of health and social services.

62. Other examples of co-ordination through inter-ministerial committees are provided by *Singapore,* where a joint committee on epidemiology comprises representatives of the Ministries of Health and the Environment and where the Health Ministry takes part with other ministries in the planning of urban development to ensure adequate health services; by *Jamaica,* where a nutrition committee, involving the Ministries of Education, Health and Agriculture, has prepared a nutrition policy to enable the country to be self-supporting in food; by *Trinidad and Tobago,* where a special committee has been formed to deal with such problem areas as nutrition and environmental health; and by *Bangladesh.* Co-ordination between various authorities in *Australia* is required by a recently-adopted code of general principles on occupational safety and health in government employment, for the health aspects of which the Director-General of Health is responsible.

Inclusion of environmental health in the training of engineers and other professionals

63. Training in public health engineering is becoming more widespread. Environmental health, including sanitary engineering, has been included in the training of civil engineers in *Sri Lanka* for many years, and the possibility of multi-disciplinary training programmes is being considered. In *Britain,* training in environmental health has long been an integral part of the education of civil engineers, surveyors and architects. It is included as part of the engineering course at the University of *Singapore,* and of the local courses for training engineers and architects in *Malta.* It is part of the training of health engineers and some scientists employed by government departments in *New Zealand,* where the Department of Health promotes the postgraduate training of civil engineers in public health engineering at Auckland University.

64. In *Australia,* the Queensland Institute of Technology offers a postgraduate diploma in environmental engineering, involving three years' part-time study for qualified engineers. It is expected that the projected recruitment of a public health engineer at the University of *Mauritius* will bring emphasis on environmental health in the training of engineers and other professionals, and it is proposed to start an environmental studies course at the University Pertanian (Agriculture), *Malaysia,* in 1976. At the sub-professional level, multi-disciplinary programmes have been introduced in para-medical schools in *Zambia,* and the Ministry of Health of *Grenada* assists with the training of waterworks technicians.

THE PLACE OF FAMILY PLANNING IN HEALTH PROGRAMMES

Making family planning services more freely available; personnel used, their training and supervision

65. Countries are increasingly adopting the approach of making family planning services an integral part of maternal and child health care services. Family planning training is also on the increase at all levels – for doctors, nurses, midwives and other staff – and the emphasis is on improved family health.

66. Family planning is now an integral part of maternal and child health services being offered at most health institutions in *Zambia, Lesotho, Botswana, Mauritius, Malaysia* and *Trinidad and Tobago.* There is often a significant input by voluntary bodies and by international agencies. In *Zambia,* the Family Planning and Welfare Association supplies pills, loops and motivational services, while the clinical service is provided by health institutions. Integration of the services in *Malaysia,* under a project agreed with IBRD and UNFPA in 1973, was completed in 1976. The National Family Planning Board provides services in government maternity hospitals, health centres and sub-centres; government medical officers and specialist obstetricians also work with the Family Planning Association on a voluntary basis and assist in running the family planning clinics of the Association. There is similar collaboration between the Ministry of Health and the Planned Parenthood Association in *Grenada.* The integrated approach has been adopted in *Mauritius* since 1972, and service points (including those in hospitals) have been increased to 125, plus a mobile unit; two voluntary family planning organisations also provide information, education and services. *Jamaica* claims to be the first country in the world to initiate the distribution of contraceptives commercially and without prescription through selected sellers who are given instruction and have a close relationship with health centres. Lay persons in *Barbados* also distribute the contraceptive pill, subject to prescribed conditions. In *Sierra Leone,* where the health aspects of family planning are integrated as part of maternal and child health programmes, a national fertility advisory service is proposed under the sponsorship of IPPF, and training for doctors and health staff involved will be provided both locally and overseas.

67. *Sri Lanka's* national family planning programme has been integrated into the general health services. Clinical facilities for terminal methods of fertility control are provided at all hospitals served by specialist medical staff and are extended to other hospitals by mobile clinical teams. Family planning advice is provided at all maternal and child health clinics, polyclinics and a network of family planning clinics. The service includes the provision of conventional

contraceptives and IUD insertion. Sales points for contraceptives have been set up in all medical institutions and in government departments, corporations, mercantile establishments and plantation centres. Public health midwives and nurses provide a domiciliary service. A number of ministries, as well as voluntary organisations, commercial concerns and trade unions, are involved in Sri Lanka's eleven UNFPA-sponsored family planning projects. The Ministry of Plan Implementation acts as the co-ordinating agency and there are divisional family health action committees.

68. *Singapore,* which has a Family Planning and Population Board, is another country which has adopted a positive approach. Contraceptives are available at MCH clinics (including mobile clinics), selected community centres, and through a home sales service. There is a vasectomy family planning clinic for men, for women there are post-partum and post-abortal contact services which include home visiting, and there is a telephone information service managed by six doctors and two nurses. Two male clinics have also been established in *Trinidad and Tobago.* In *Britain* a free comprehensive service at all family planning clinics, regardless of sex, marital status or age, began in 1974 and became available also from hospitals and general practitioners in 1975. In *New Zealand,* where family planning services are mainly provided by GPs, contraceptives are not normally supplied free, except where a patient cannot meet the cost. The New Zealand Family Planning Association now operates 33 clinics, some of them in hospitals, with financial assistance from the Government. The number of hospitals which have established family planning clinics is increasing and a clinic is also held in the Department of Health for the convenience of the public.

69. There has been a rapid expansion of family planning services in *Australia,* where they are provided through private practitioners, specialists in obstetrics and gynaecology, clinics run by voluntary organisations, some hospital out-patient departments, ante-natal and post-natal services, community and women's health centres, and venereal disease clinics. Only doctors can prescribe oral contraceptives and IUDs, and contraceptives can be distributed only by doctors, pharmacists and clinics. Natural ovulation methods are taught by specially trained lay teachers supervised by doctors under the Catholic Social Welfare Programme. Three women's health advisers work with the Royal Flying Doctor Service to provide women in remote and isolated areas with information and counselling on family planning and related health problems.

70. More staff working at primary health care level are being trained to deliver family planning services. In *Malaysia* these services are being extended to remote rural areas by government midwives. The number of auxiliary personnel trained for this purpose in 1975 was 1011, and 183 supervisory staff (medical officers and nurses) also received technical and administrative training in family planning. *Tonga* has held workshops and seminars for staff working in family planning, and nurses in *Lesotho* and *Sierra Leone* have received training locally and abroad. In *Mauritius,* where the number of persons employed in family planning services has increased, medical personnel are given 1–2 weeks on-the-job training and newly-recruited lay staff are given 12 weeks (2 weeks tutorial and 10 weeks on-the-job). *Botswana* trains family welfare educators as motivators. Community health aides play an important part in the delivery of family planning services in *Jamaica.* In *Trinidad and Tobago* nursing assistants have been trained as primary health care workers for this purpose, the Family Planning Association has taken its service to factories, and a family planning institute is to be constructed. *Singapore* has given training to community leaders, teachers, vigilante corps instructors and trade unionists, through seminars and courses with the assistance of the Family Planning and Population Board.

71. In *New Zealand* courses for general practitioners and nurses are held at the National Women's Hospital, similar courses at the Christchurch Women's Hospital are planned, and the further extension of family planning training to public health nurses and other nursing cadres is contemplated. The NZFPA has conducted a three-day training programme for social workers. The *Australian* Federation of Family Planning Associations has expanded its training programmes for medical and nursing personnel and community educators. Doctors, health visitors and nurses involved in *Britain's* family planning services are given basic specialised training, and appreciation courses are also available for social workers. Training in family health for health personnel in *Sri Lanka* includes maternal and child health care, immunisation, nutrition and sanitation, as well

as family planning. All doctors and para-medical staff working for the Ministry of Health receive in-service training in family health, medical students act as family health/family planning activators in community health project areas, and a curriculum for training practioners of indigenous medicine is being introduced. Sri Lanka's Department of Rural Development conducts regular training programmes in family planning for rural development officers and needlework instructors to help them to act as motivators.

72. Reports received give evidence of a significant increase in general publicity for family planning. Radio and television programmes in *Mauritius* on family planning were increased in 1975 and there were more film shows and group discussions on the subject. Seminars involving trade unions, employers, co-operative unions and the Ministries of Health, Labour and Planning and Development were also available. In *New Zealand* staff of the Ministry of Health and the Family Planning Association conduct educational programmes for the public and for secondary schools. Family planning services are publicised in *Singapore* through radio, television, cinema, newspapers, exhibitions, and the distribution of posters, pamphlets, stickers and souvenir items. There is an advisory service for newly-weds, talks are given to school-leavers, and family planning information is incorporated into community and trade union educational programmes, and into training courses for national servicemen, the vigilante corps and the police.

73. Marriage preparation courses and clinics run by voluntary agencies are the main medium for guidance on planned parenthood in *Malta*. In *Australia* there is growing awareness of the need for nurses, teachers and social workers to play a more positive role in the dissemination of family planning information at community level, and family planning associations participate in educational programmes for teachers and schools. The need for family planning services was discussed at a conference on women's health held in 1975 as part of Australia's International Women's Year activities. The *Sri Lanka* Ministry of Information and Broadcasting has a family planning strategy project which includes radio talks and films, and family planning and population awareness is introduced into secondary school curricula and teacher training programmes by the Ministry of Education with the assistance of UNFPA funds.

THE ROLE OF HEALTH STATISTICS

Developments in the collection and appraisal of health statistics and in the training of health statisticians

74. WHO experts are assisting several countries to improve the organisation of health statistics and the training of staff: examples are *Sierra Leone, Mauritius, Bahamas* and *Lesotho*. A medical statistician has been provided for the Bahamas through the CFTC and a training fellowship for a records officer has been requested by *Grenada*. In-service training takes place in some countries, such as *Zambia* where statistician assistants are trained in the medical statistics unit of the Ministry of Health. Other countries send records officers on training courses overseas. The *Cyprus* Ministry of Health is strengthening its statistical services in collaboration with the Central Statistical Department and the introduction of a new medical records system is under consideration. In *Botswana*, where a medical statistics unit was established in 1973, the statistics collected are computerised. The statistics unit of the *Trinidad and Tobago* Ministry of Health was also set up in 1973 and prepares data on immunisation, hospital admissions, discharges and outpatient services, health centre attendances, and epidemiological surveillance of communicable diseases. Data on morbidity are also to be produced with a tabulating machine. The training of additional staff is proposed so that the data collection can be expanded to include manpower and expenditure statistics to assist health planning, and the introduction of a career structure which will attract well-qualified personnel is in view. Health statisticians and medical records officers are being trained with the assistance of PAHO/WHO. A shortage of statistical staff for training in health statistics is being experienced in *Malawi*, where a WHO statistician re-designed data collection forms and rationalised data collection procedures in 1974/75.

75. In *Britain*, where a wide-ranging set of morbidity information is produced from returns, a review of statistical returns is to take place shortly. Statisticians or statistical officers, mostly

graduates, are employed by nearly all Britain's regional health authorities. *Malta* has sought the assistance of the British Government towards setting up a health statistics unit, through providing a medical statistician and a hospital records officer. *Jamaica* has medical records personnel under training but has had little success so far with the recruitment and training of statisticians. *Sri Lanka* and *Bangladesh* are two more examples of countries with statistical units in their Ministries of Health for the compilation of data on morbidity which are used for epidemiological study and the planning and development of health services. The system of collecting, compiling and analysing statistics of hospital activity in *Singapore* has recently been reviewed by the research and statistics unit of the Ministry of Health and a new series has been introduced, geared to evaluating and measuring the effectiveness of hospital services. The system for hospital patient statistics has also been reviewed and revised. The unit, in which common-use statisticians work under the supervision of doctors, maintains a computerised register of all medical practitioners in Singapore, and similar registers of nurses and midwives and of dentists are planned.

76. A pilot study on health management data was recently completed in *New Zealand* and a more comprehensive nation-wide scheme is to be introduced in 1977. The *Australian* Hospitals and Health Services Commission issued a report in 1975 on a plan for health and related welfare statistics, and the Australian Bureau of Statistics held a conference on health statistics early in 1976. The Bureau publishes the results of surveys on such subjects as peri-natal deaths and chronic injuries and impairments, and reports on hospital facilities and services and patients receiving domiciliary care have been published by the central statistical unit of the Australian Department of Health. The Hospitals and Health Services Commission has prepared a report on Australia's health manpower and a handbook on health manpower has been published by the Department of Health. The Royal Australian College of General Practitioners has developed a standardised medical record system for morbidity data.

ORGANISATION AND MANAGEMENT FOR TRAINING RETENTION AND DEPLOYMENT OF HEALTH PERSONNEL

Advances in training health personnel on lines appropriate to national needs and with the right motivation

77. There is evidence of the expansion of local training at all levels. At the postgraduate level the University of *Malaysia* has started a one-year course in preventive and social medicine leading to the award of Master in Public Health. The Ministry of Health is providing ten scholarships for medical officers who will subsequently be eligible for appointment as medical officers of health. For undergraduates at Malaysian medical schools, special emphasis is placed on rural health in the curriculum, and the needs of rural communities are further underlined through postings to district hospitals and involvement in rural health surveys during their clinical years. In *India's* medical colleges, which number over 100, community medicine is becoming a feature of teaching at all levels. Medical education is being progressively reorientated in accordance with community needs and some of the teaching is to be carried out actually within the rural community. *Bangladesh* has acted on the advice of WHO experts in making changes in training curricula for doctors, and for tutors, to produce an orientation towards community health care. Countries such as *Botswana, Cyprus* and *Tonga,* without medical schools of their own, continue to rely on other countries for medical training.

78. The expansion of local training for health staff is a feature of a number of reports. Auxiliary personnel in *Zambia* are trained to suit Zambian needs. In *Tanzania,* the training of medical assistants to take charge of health centres and rural medical aids to operate dispensaries has been stepped up, and maternal and child health aids are being trained in all 20 regions of the country. Proposals under consideration in *Sierra Leone* envisage the training of medical assistants in the provinces, in the environment in which they will eventually work, whilst community health nurses, although trained in Freetown, will work in rural areas during their training period. Over 100 community nurses are now trained each year at the two rural health training schools in *Malaysia,* and three regional training schools are planned. Nurses, midwives and health inspectors in *Cyprus* are all trained locally. Courses for public health inspectors in *Mauritius* and *Malaysia*

lead to Royal Society of Health qualifications. A division of health sciences has been started at the Community College in *Barbados* for training health personnel, both local and from elsewhere in the Leeward and Windward Islands. Training programmes in *Botswana* for nurses, midwives, health assistants, dental therapists and family welfare educators are all tailored to local needs. *Jamaica,* faced with a shortage of doctors and nurses, is also trying to develop para-medical facilities.

79. There have been discussions between the *Trinidad and Tobago* Ministry of Health and the Faculty of Medicine of the University of the West Indies on the orientation of undergraduate medical training to produce medical officers motivated to serve in rural areas. The curriculum will be given a slight bias towards community medicine and students will be exposed to this aspect of health care at an early stage. The nurse training programme is being revised and the training of nurse practitioners, who will give follow-up care to patients with chronic diseases such as diabetes and hypertension, has been started. Nursing assistants are being trained in community health duties. A new community health training centre will be the nucleus of a regional college of allied health professions, and a programme for improving skills of hospital equipment servicemen is in operation. A dental auxiliary training school began its first course in 1976.

80. In *Singapore,* where undergraduate and postgraduate training is given at the University and ancillary staff undergo courses conducted by the School of Nursing, dental therapists are being trained to work with dental practitioners as a way of coping with the increased demand for dental treatment, and radiographers are being trained in radiotherapy. *Malawi's* new medical school at Lilongwe will train clinical officers, whose course will be designed to meet basic rural health needs. The capacity of the school, which will also train laboratory assistants and pharmaceutical assistants, will be 200.

81. Courses in physiotherapy, medical laboratory technology and radiography have been started locally in *Malta.* The curricula in *Sri Lanka* for the training of nurses, midwives, public health inspectors and other para-medical personnel have been specially designed to serve the country's health needs, curative and preventive services are being integrated, and medical and paramedical personnel engaged in the national family health programmes undergo reorientation training. In-service training is mentioned in several replies. Nurses in *Lesotho* are taught additional skills to enable them to function as nurse-practitioners in rural areas where doctors are not available. *Bangladesh* has started in-service motivation training, and its training of community health nurses is multi-directional. Public health inspectors in the *Bahamas* have attended a WHO/PAHO-assisted programme on environmental health, designed to deal with local problems, and a workshop on epidemiological surveillance of communicable diseases is planned for staff of the outer islands in 1976.

82. In 1974 the *New Zealand* Government approved a scheme for the training of hospital registrars in general practice. Aimed at attracting young doctors into general practice, the scheme is also intended to promote better integration of services provided by hospitals and general practice in the field of preventive health care. A report submitted to the *Australian* Government in 1975 by the Hospitals and Health Services Commission recommended the establishment of a standing committee to reconcile, in consultation with educational and State health authorities, facilities for training with health manpower needs, and to stimulate the best possible deployment of training facilities, health resources and personnel. In *Britain,* where the National Training Council is concerned with the general strategy, development and co-ordination of training for the national health service, four committees have recently been examining the recruitment, training and development of particular groups, including nurses, midwives and ancillary personnel.

Measures to reduce the emigration of skilled manpower

83. Under *Sri Lanka's* Compulsory Services Act, medical graduates are required to serve the country for a minimum period of years. When scholarships or fellowships are awarded, recipients are required to serve the country for a stipulated period on their return from study. Permission to emigrate is required in *Grenada,* and in *Tonga* officers in government service must remain for a

prescribed period of up to five years before their resignations can be accepted. Scholarships and bursaries are treated as loans in *Sierra Leone,* and students must serve for a period equal to the duration of the award or repay it in full with interest. Doctors going abroad on scholarships from *Malta* are bonded to serve for a stipulated number of years in Malta on their return, and a similar arrangement is in force for *Zambians* sponsored by their Government.

84. *Malta* has increased doctors' salaries and provided better conditions of work (including less night duty). Better conditions have also been provided in *Mauritius,* where the salary structure has recently been revised, opportunities for post-basic training have been offered to health staff, and refresher courses for medical staff have been held. *Trinidad and Tobago,* besides offering better remuneration and working conditions, has ensured more opportunities for participation in the planning of health services, and it is anticipated that the introduction of postgraduate medical education in 1976 will reduce emigration. A career ladder has been established in the public service and all public health medical officers are permitted private practice. *Singapore* has offered quick promotions, made scholarships and fellowships available for those wishing to advance themselves, provided deserving staff and their spouses with free air passages, and made housing and vehicle loans at low interest rates. In *Cyprus,* where some emigration of doctors and other skilled personnel followed the Turkish invasion, new graduate doctors and qualified nurses have been appointed and the staffing of the health services has not been seriously affected. (The subject of measures to reduce medical migration is treated in more detail in the brain drain study referred to in the report on action by the Commonwealth Secretariat).

DISASTER RELIEF

Plans which could be put into operation in the event of disasters

85. Some countries have plans to deal with hurricane disasters. The *Bahamas* has drawn up detailed instructions and precautions for use in the event of hurricanes, and these are suitable for adoption for other sorts of disaster. *Grenada* has a Hurricane Relief Committee and *Barbados* a multi-sectoral Hurricane Relief Organisation and also an Aircraft Disaster Plan. The National Emergency Relief Organisation (NERO) of *Trinidad and Tobago,* which co-ordinates disaster relief services, has a health committee with members from government medical services, private hospitals and voluntary agencies. The disaster plan, which is being up-dated and tested before the next hurricane season, provides for emergency medical services, screening and the transfer of serious casualties to central hospitals. Hurricane plans in *Jamaica* are re-issued each year, and there are also aircraft accident and other emergency procedures. In the case of a recent outbreak of food poisoning resulting from contamination of flour with parathion, a special department of the Ministry of Health was set up to deal with the problem.

86. *Botswana* has a disaster plan as yet untested. In *Malaysia,* where relief operations have been tested during floods, a National Disaster Relief Committee, on which key Federal departments are represented, has been established in the Prime Minister's Department and similar committees have been formed at state level. Each Federal department has a contingency plan for disasters, and relief operations are co-ordinated in the State operations room. *Lesotho, Sierra Leone* and *Zambia* have national disaster relief committees, and voluntary bodies such as the Red Cross and St. John's Ambulance are organised in a number of countries to provide clothing, food and medicines in the event of disasters arising. *Malawi* has a cholera control committee at national level, with area, district and village branches, and it is planned to develop this organisation to deal with other disasters. *Sri Lanka* has special programmes for health services developed at times of floods. In *Singapore,* where disaster relief plans are co-ordinated with the fire brigade, the police and other agencies, drills in conditions of simulated disaster are carried out. In *Bangladesh* reminders are sent out to ensure preparedness in the event of the disaster relief scheme having to be put into operation.

87. Regional health authorities in *Britain* are responsible for the provision of health services to deal with major accidents, and guidance is given on medical, nursing and ambulance requirements. Plans are regularly up-dated and exercises to test them are held. *Malta's* disaster relief plans are also revised and up-dated. *New Zealand's* permanent civil defence organisation has plans to cater for emergencies. In *Australia,* each State has a health plan for operation in the event of floods, bush fires or cyclones, and a Natural Disaster Organisation at Federal level, which maintains a 24-hour monitoring service, has contingency plans to help when State organisation proves inadequate. The health element is prominent in these plans, which provide for supplies of drugs, dressings and vaccines, surveys of available hospital accommodation, and arrangements for air transport.

8 August 1977

CMC (77) I/A2

REVIEW OF ACTION TAKEN FOLLOWING THE FOURTH COMMONWEALTH MEDICAL CONFERENCE

Action by the Secretariat

Paper prepared by the Commonwealth Secretariat

Over recent years, and in accordance with the recommendations of meetings of Commonwealth Ministers of Health, the functions of the Commonwealth Secretariat in the health sector have been extended beyond servicing conferences, disseminating information and maintaining liaison. They now include in addition the provision of practical assistance towards the improvement of health services in developing member countries. This extension has been possible partly through the resources of the Commonwealth Fund for Technical Co-operation (CFTC) which is administered in the Secretariat.

2. Nevertheless, limitations of staff and finance have dictated a selective approach to the numerous recommendations of the Fourth Medical Conference for action by the Secretariat. Priorities for the Office of the Medical Adviser outlined in the 1976 review of Secretariat activities were: assistance for the delivery of health care to rural and other needy areas in developing countries; the promotion of national self-reliance and regional co-operation in the approach to health problems; the investigation, at the request of Governments, of specific problems in the health field, and follow-up action; and the provision of technical advice and assistance, particularly to the most needy. These priorities are in line with the recommendations of the Fourth Medical Conference and earlier conferences, and were confirmed by the meeting of Senior Officials in Canberra in 1976.

Special studies

3. In its work programme since the 1974 Medical Conference, the Secretariat has concentrated action on recommendations on which the Conference placed major emphasis, in areas of greatest need. Three special studies – on medical migration, on medicinal drug procurement and on the maintenance of medical equipment – have been undertaken and are the subject of more detailed comment in companion papers. In addition, a study on abortion law in member countries, which will also be dealt with in a separate paper, has been undertaken in collaboration with the International Planned Parenthood Federation. The co-operation of member Governments in connection with these studies, in making arrangements for visiting consultants and providing the information required, has been most valuable and much appreciated.

Health management training

4. The Colombo Conference called on the Secretariat to help in the development of training programmes to improve managerial skills in health service administration. Since 1974 the Secretariat has been able to assist the holding of four regional courses in Africa for senior doctors and other staff. Three of these have been in West Africa, where a most successful co-operative venture involving the West African Health Secretariat, the Ghana Ministry of Health and the Ghana Institute of Management and Public Administration, as well as the Commonwealth Secretariat, has been developed. The Secretariat was able to contribute a certain amount of initial co-ordination and has provided financial support of more than £20,000 for each course and consultants drawn from West Africa and Britain.

5. A workshop to prepare for similar training in East, Central and Southern Africa took place at Arusha, Tanzania, in 1976 and the first health management course in that region was held in mid-1977. This was another co-operative project, the Regional Health Secretariat, the East African Community Management Institute and the Commonwealth Secretariat, which provided assistance similar to that in West Africa, being jointly involved.

6. These training activities have included an inter-regional element, with several participants from eastern Africa attending the West African courses and key personnel from West Africa assisting with the workshop and course in Arusha. The contribution of Dr. Tom Hopwood of the Wellcome Trust, who has been closely involved throughout and has prepared training manuals for use in the courses, has been particularly valuable. The Health Section of the Caribbean Community Secretariat has been kept informed and Dr. Hopwood's attendance at a Caribbean training seminar in 1976 was financed through the CFTC.

REGIONAL CO-OPERATION

7. The value of close regional collaboration to secure maximum benefit from available resources in the health sector, has been emphasised at successive Commonwealth Medical Conferences, and the view that regional co-operation among developing countries should increasingly become a focal point of international strategy to promote their development on the basis of self-reliance was endorsed by Commonwealth Heads of Government at their 1977 meeting in London.

8. The Secretariat has continued to give support and advice to Commonwealth regional health agencies and to provide assistance for regional projects, particularly training projects. In fact, the main thrust of the work of the Medical Adviser's Office has been made through the machinery of regional co-operation. Regional meetings of Health Ministers, and also meetings of their chief officials, have been attended by the Medical Adviser and close contact with the regional agencies, as well as with individual Ministries of Health, has been maintained. In addition, through the CFTC, the Secretariat has been able to supply individual countries in all regions with a wide range of advisers and operational personnel in the health sector; and the Medical Adviser has himself served as a resource person in this connection, on request – as in the case of Barbados, where he has acted as consultant on proposals for a national health scheme.

Caribbean

9. In response to requests from the Caribbean Community Secretariat, financial support is being given for the post of Chief of its Health Section and that of an administrative officer who assists him. Regional projects supported include the preparation of an environmental health strategy, a survey of dental health, planning meetings on nursing education, and the harmonisation of health legislation. A regional workshop on medical education, which brought together representatives of Ministries of Health and training institutions and which the Medical Adviser attended, has also been assisted.

West Africa

10. When the West African Health Secretariat was established in Lagos, Nigeria, in 1972, the Commonwealth Secretariat agreed to finance the posts of Regional Secretary and his deputy for an initial period. It was agreed in 1976 with the Governments concerned that this contribution should be phased out and re-directed to regional programmes. West African projects assisted by the Secretariat have mainly been concerned with training. Besides the health management courses referred to above, they have included exchange visits by chief nursing officers and a meeting on the co-ordination of nursing training; a meeting of chief pharmacists and storekeepers on co-operation in medicinal drug procurement and distribution; the provision of fellowships for the training of medical and health personnel of various cadres at institutions in the region; and regional symposia on such topics as the care of the injured and onchocerciasis (river blindness).

East, Central and Southern Africa

11. The Commonwealth Secretariat continues to finance the two chief posts in the Regional Health Secretariat for East, Central and Southern Africa, established at Arusha, Tanzania, in 1974. The two officers are directly responsible to the Ministers of Health of their region, and it is envisaged that in due course the arrangement will be adjusted as in West Africa. Regional projects assisted by the Commonwealth Secretariat, in addition to the health management course mentioned above, include a workshop in Nairobi in 1976 on textbooks and teaching manuals for health personnel; and an investigation by three consultants drawn from the region into the need and facilities for training tutors for auxiliary health personnel. Other projects under discussion, Commonwealth Secretariat support for which is anticipated, are a proposed regional course in medical engineering at the Swaziland College of Technology and the use of visiting professors and consultants to promote continuing medical education.

Asia and the Pacific

12. An investigation of the feasibility of developing further machinery for regional health co-operation between member countries in Asia and the Pacific, called for by their representatives at the time of the Colombo Medical Conference, was undertaken in 1976 by an officer provided by the Government of Sri Lanka, whose visits to the countries concerned were arranged and financed by the Secretariat. The Secretariat also arranged and serviced two meetings in Geneva in May 1977 at which the officer's findings were discussed and has prepared a paper describing the development of regional co-operation elsewhere, to assist regional representatives at a further meeting, which is to be held in Wellington during the Fifth Commonwealth Medical Conference, to arrive at a decision on the form co-operation should take.

Inter-regional co-operation

13. A joint meeting of representatives of Commonwealth regional health agencies and the Commonwealth Secretariat was held in London early in 1977 to discuss ways of extending regional and inter-regional collaboration in health matters. The meeting reviewed progress with the promotion of health co-operation through the activities of the regional agencies; problems faced by the agencies were examined and ways of resolving them were considered. Ways in which the regional agencies and the Commonwealth Secretariat could most effectively contribute to changing health strategies and the future development of regional and inter-regional health co-operation were also discussed. It was agreed that annual meetings of regional and Secretariat officers should be held in future. (A report on the meeting was included with the record of the Preparatory Meeting in Geneva on 1 May 1977).

RELATIONS WITH WHO

14. Relations with WHO and other health agencies were also reviewed at the meeting with the regional officers, the object being not only to avoid duplication of effort but also to consider how effective collaboration could be achieved.

15. The Commonwealth Secretariat was accorded official observer status at the World Health Assembly in 1977, and the Medical Adviser has maintained close contact with the WHO head-quarters in Geneva.

8 August 1977

CMC (77) I/A3

BRAIN DRAIN

Paper prepared by the Commonwealth Secretariat

A study of medical migration was requested by the Fourth Commonwealth Medical Conference in 1974. The scope of the study was widened, following discussion of the brain drain by Heads of Government at their 1975 meeting in Jamaica, to include some other professions. The Secretariat commissioned Mr. Oscar Gish and Mr. Martin Godfrey, of the Institute of Development Studies, University of Sussex, Britain, to undertake the study, and arrangements were made for them to visit a number of countries. Information was also obtained by means of a questionnaire to Governments, prepared by the Secretariat in collaboration with the consultants.

2. The report of the consultants (Annex A), which was originally sent to Governments in April 1976 and was the subject of some discussion at the Pre-WHA Meeting in Geneva and at the Meeting of Senior Officials in Canberra, both in May 1976, is mainly concerned with the medical profession. The views it contains are those of the consultants and should not be taken to reflect those of the Secretariat.

3. There are two main aspects to the problem of medical migration. The first is the immigration policies of certain receiving countries, Commonwealth and non-Commonwealth. In the past, the admission policies of these countries seem to have been influenced by shortages of people with professional qualifications and specialised skills. As long as these shortages continue, so also will the tendency for such people to be attracted from the developing countries to the more developed. The solution to the problem, therefore, rests to some extent on the determination of the developed countries themselves to produce sufficient numbers of professionals to meet their own needs and on their willingness in the meantime to forego opportunities to make good their manpower shortages by recruiting professionals from developing countries where shortages are even more acute.

4. The second aspect of the problem is the policies of the developing countries from which professionals are emigrating. For reasons of national pride, established practice and professional opinion, it is unlikely that wide support would be found for the proposal that medical practitioners should be trained to levels below currently accepted international standards, so that their qualifications should not be internationally negotiable.

5. It is the conclusion of the consultants, in common with a number of other studies of the problem, that the solution with regard to measures that need to be taken rests mainly with the developing countries themselves. Studies have shown that migration is highest among graduates who have studied abroad. A list of nationals pursuing medical studies, or in medical employment, abroad might be maintained by countries suffering from shortages, and such nationals kept informed of local developments and vacancies. Young people are less likely to emigrate if they are trained in their own country or region, where they are likely to develop strong local ties. This consideration reinforces the case for the further development of medical training, including post-graduate training, on a national or regional basis. It also points to the need to review medical curricula and to ensure that the next generation of students are orientated towards the needs of their own countries. The importance in educational planning of taking into account the adverse effects of migration on resources of skilled manpower was stressed at the Seventh Commonwealth Education Conference, in Accra in March 1977.

Bonding

6. One approach open to developing countries involves the bonding of medical practitioners for local service after graduation. A number of member countries have regulations obliging practitioners to serve for a number of years after graduation before they can be allowed to emigrate.

Details of such regulations have been obtained by the Secretariat from the governments concerned and are analysed in the accompanying paper (Annex B) prepared by the Secretariat's Legal Division.

7. As the consultants point out in their report, bonding is unlikely to be a long-term answer to the problem of medical migration, however. In many cases it may mean no more than postponement, resulting in emigration of doctors with several years experience. Nevertheless, it would mean that the country would obtain at least those years of service from each trained person it produces.

8. Where bonding regulations are used, it is obviously necessary to provide the appropriate number of posts and satisfactory conditions of service for those bonded, who will be available in predictable numbers. After their period of bonding has elapsed, satisfaction with their service and local connections may mean that fewer will wish to leave. Again, a prescribed number of years of local service, which can include the bonding period, may be insisted on as a requirement for promotion or as a necessary qualification for an award for postgraduate training. Where there are postgraduate training institutions in the country or the region, awards can be made for further training in these, rather than elsewhere, and awards can carry with them a further period of bonding.

Incentives

9. Efforts to reduce medical migration at source are likely to be fully effective only within the context of a co-ordinated drive for economic and social development, involving a widespread sense of commitment, in which practitioners can achieve professional and personal satisfaction. Rigid or cumbersome administrative structures are sometimes a source of frustration to highly-trained personnel. There is a need to provide opportunities for promotion and for young professionals to participate as fully as possible in health management, a need to delegate responsibility, encourage initiative and innovation, and ensure that appointments and promotions are made solely on the basis of merit, so that the energetic and creative receive recognition.

10. Other measures to encourage medical personnel to remain in, or return to, their home countries include rent allowances, loans on favourable terms for the purchase of houses and cars, options for buying houses where housing is scarce, waivers of import duty on equipment and furniture bought abroad, and assistance for postgraduate training.

Health care delivery systems and manpower training

11. The fundamental solution to the problem of medical migration, however, may lie not so much in attempting to contain it by various restrictions and incentives, but rather by bringing about changes in the framework of national health care systems and in the training structures which serve them.

12. The consultants' report rightly emphasises the importance of relating health manpower planning and medical training; this has been included as a separate item on the Medical Conference Agenda. The extent to which this aspect of health planning has received insufficient attention in some countries is surprising; the economic consequences of this neglect must be considerable. Where the relationship between medical schools and Ministries of Health is minimal, the number of doctors produced and the content of their training often fail to take national health needs into account. In some cases, the result has been that more doctors have been trained than can be easily absorbed into the national health service, and that their training has not been closely enough directed to the main health needs of the community as a whole.

13. These needs have not always been defined with sufficient clarity. In many areas there is an internal brain drain: skilled personnel tend to concentrate in the more lucrative, urban areas, while the poorer, rural areas, where the mass of the people live, suffer from neglect. It seems essential that deficiencies should be identified and appropriate measures taken to remedy them. The

Director-General of the World Health Organisation has repeatedly stressed the importance of maintaining appropriate relationships between health goals and their social relevance and economic feasibility, of placing as much emphasis on the distribution of health resources as on their quality or quantity. Systems devised and located to meet recognised local community health needs, rather than to follow traditional European or American patterns, should lead to more appropriate and feasible health policies and services.

Recommendations

14. Ministers of Health may wish to consider recommending:

(a) that Governments of receiving countries should refrain from making good their medical manpower shortages by recruiting members of the medical profession from the developing world, and particularly countries where shortages are even more acute;

(b) that Governments of developing countries should establish, on a national or regional basis, machinery for the continuing study and review of measures to reduce medical migration;

(c) that the work of the groups established for this purpose should also include consideration of health manpower planning and the most appropriate distribution of health resources;

(d) that such groups should include representatives of medical teaching institutions and professional associations as well as Ministries of Health and Ministries of Development Planning;

(e) that a co-ordinator, with wide knowledge of local conditions, should be appointed for each region;

(f) that information on the work of the groups should be exchanged between regions with the aim of ensuring a common approach and the sharing of experience and personnel; and

(g) that the Commonwealth Secretariat should, on request, provide short-term expert consultants to assist with the work of the groups, where possible on a regional basis.

6 September 1977

Annex A to CMC(77) I/A3

A Reappraisal of the Brain Drain– with Special Reference to the Medical Profession

by Oscar Gish and Martin Godfrey

Summary

On current trends some change in the direction of brain drain seems fairly certain and a fall in the numbers involved quite likely. This does not, however, signal the end of the problem which lies not so much in the numbers who migrate as in the distortion of training systems and economic structures that their mobility implies.

2. The ineffectiveness of policies so far implemented to deal with brain drain stems largely from the inadequacy of the standard neoclassical framework of analysis, which also misrepresents the effects of brain drain. The fundamental inadequacy of this analysis derives from the fact that it deals with the response of individuals to a number of variables without taking account of the *structure* within which individual decisions are made and of the relevant interdependencies and dynamic effects.

3. The most important aspect of this structure is the existence of an international market in professional skills into which the Third World educated elite is more or less integrated, to the benefit of their salary levels and, in a process of institutional determination of salaries, those of all who can plausibly claim 'comparability' with them. The condition of integration into this international market is the possession of *internationally negotiable qualifications* – and international negotiability implies, to a varying degree, *lack of relation to local needs*. In other words, Third World professionals acquire international mobility either by studying abroad or by attending a local institution with curricula and syllabi appropriate to the job context of the developed rather than the less developed countries.

4. In addition to this qualitative distortion of education and training systems, the tying of local professionals into the international rather than the local market, and the consequently higher anticipated private rate of return on their training open to them, *build in* an overproduction of inappropriate skills, as the state responds to the excess demand for training school places by building more training schools or by sending more students overseas. This is the point overlooked by economists who talk about overflow rather than drain. Their view that the brain drain is no problem because there is a surplus of educated manpower at home can be seen to be excessively static, to say the least.

5. In the particular case of the medical profession this means that the question of international migration is of interest not so much in itself, but because of what it reveals about the nature of particular health care systems and the socio-political structures in which they operate. If everything else were to stay much the same the reduction of medical emigration would probably make no difference at all to the welfare of most of the population of countries such as India or Jamaica. In the same vein, the solution to the problems raised by these international movements are not to be found within the movements themselves but in necessary changes within the framework of specific national health care systems and, of course, the social, political and class structures in which they exist.

6. As far as policy is concerned, the remedy implied by neoclassical analysis is that of change in monetary rewards and working conditions. The problem here is that the changes in monetary and non-monetary rewards necessary to stop the brain drain may be much larger than is practically conceivable as well as undesirable from the point of view of their effect on internal income distribution. Emigration controls and bonding schemes may be effective in the short run but retaining frustrated, demoralised and conservative professionals by these means may make long run reform more difficult.

7. The 'Bhagwati income tax' proposal, to judge from preliminary estimates of the relevant elasticities of response, may differ little in effect from straightforward government-to-government compensation. Pressure for such compensation must of course continue, but cannot be seen as a 'solution' to the problems involved.

8. The above are the policy recommendations arising from the standard framework of analysis. However, if alternatively, brain drain is regarded as a reflection of (undesirable) integration into an international market in professional skills, then the only way of achieving a substantial impact on the drain (and on the more serious internal distortions that it reflects) is *withdrawal from that market.*

9. For less developed country (LDC) Commonwealth governments, this would involve:

(a) An end to the use of developed country (DC) qualifications in local training institutions

(b) An end to the sitting of foreign professional examinations in LDCs and to advertisement and recruitment for posts in DCs.

(c) Disaffiliation from DC dominated international professional associations and the exploration of the possibility of setting up associations of LDC professionals, committed to greater relevance.

(d) The sending of students on more relevant and thus probably 'less negotiable' overseas courses, and preferably on relevant courses in other LDCs.

(e) The development of local courses and qualifications which were both highly suitable to the needs of the indigenous economy and therefore probably less acceptable to DC employers and training institutions.

(f) The development of new centres of higher education and training on a regional LDC

(g) The use of a national language as the medium of instruction in courses and textbooks.

(h) Changes on the demand side, i.e. in the structure of rewards and in job content.

(i) The use of scholarships policy, foreign exchange and passport controls to discourage overseas study for the acquisition of negotiable qualifications.

(j) Recognition of the wider implications of such a programme.

(k) The restriction of the output of professionals by LDCs to the number that can be absorbed at home, even at the risk of some shortages in the short run*.

10. For DC Commonwealth governments the programme would imply:

(a) Cooperation with LDC governments in the phasing out of the use of DC qualifications and in the withdrawal of DC examinations, recruiting teams and advertisements from LDCs.

(b) *In consultation with LDC governments* the withholding of recognition by DC authorities of LDC qualifications and the control of LDC entrants to training courses in DCs.

(c) A sympathetic attitude towards the reshaping of international professional associations.

(d) A change of emphasis in the provision of technical assistance awards towards third country training.

(e) Technical assistance for the redefinition of job content in LDC professions in line with social priorities, and for the development of the alternative curricula, syllabi and structures implied by this redefinition.

(f) As a major part of the educational assistance programme, support for the development of the new regional centres of relevant higher education and training.

(g) If requested, and if feasible, assistance for the development of courses and textbooks in 'non-international' languages.

(h) Also, if requested, assistance with studies of the problems involved in bringing the structure of effective demand into line with the social priorities reflected in the redesign of job content, etc.

(i) Continued progress towards self-sufficiency in the DCs' markets for professionals.

11. The implications of the above programme have been spelled out separately for LDC and DC governments but it goes without saying that, within the Commonwealth, the most effective mode

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*The concept of a 'shortage' of manpower is extremely complex and encompasses many variables. The replacement of expatriate personnel is one such important variable.

of implementation would be through mutual consultation and agreement between governments of less developed *and* developed countries. Moreover, it is recognised that the implementability of a programme of withdrawal and the optimum strategy for such implementation will vary from country to country. As such, it would be useful to study under different circumstances the possibilities and potential effects of the implementation of the recommended strategy of withdrawal. Rather than continue with general 'brain drain studies', which would imply that too little is as yet known about the phenomenon even to be able to propose a strategy of action, research on particular professional groups should be conducted in specific countries with a view towards testing the applicability of the framework put forward in this report. In practice, the best way to give specific form to the general policy recommendations suggested in this report is to study and plan for their application in the case of a particular professional group (or groups) under specific national conditions. For many of the reasons indicated earlier, doctors constitute a particularly interesting group for study. Commonwealth governments should be asked to express potential interest in such studies. Appropriate funding is likely to be available from any one of a number of bilateral and multilateral sources.

Introduction

Statistics on the outflow of trained personnel from developing to developed countries are not only of poor quality,* but usually also considerably out of date. Thus the most recent year for which relevant data is available is 1973 or even, in the case of many important countries, 1972.† The picture shown by these statistics is one of some falling away in the early seventies from the highest levels of outflow of the sixties, but of still substantial numbers in aggregate, with the United States, the United Kingdom and Canada as the major recipient countries and with doctors, nurses, teachers, engineers and scientists as the predominant categories of manpower involved.

2. Since the end of 1973 there have been several new developments. The capitalist world economy has entered and is still suffering a serious recession. The rate of expansion in the demand not only for economic resource based professionals such as engineers, but also for school and university teachers and possibly even medical graduates has been considerably reduced. At the same time output from medical schools in Britain and North America has been significantly raised and is likely to increase further in the next decade.‡ On the other hand, the oil producing countries, particularly in the Middle East, have emerged as new areas of rising demand for high level manpower. And in the European Economic Community moves towards the liberalisation of professional licensure regulations, coinciding with Britain's entry, have increased the opportunities for movement between and therefore possibly into the EEC countries.

3. While a change in the direction of brain drain§ thus seems fairly certain, the prospects for the size of the outflow, although in any case likely to be below pre-1974 levels at least for some years, depend to some extent on the timing and pace of recovery from recession. In the case of professions other than doctors the reaction to recession in the developed countries has been to cut back on training provision, which in time may mean short term employment opportunities for qualified immigrants as economic activity picks up. Even in the case of the medical profession, with its very different institutional framework, the rate of increase in demand may in some instances outstrip that of supply. Moreover, to the extent that Third World professionals fill *specific* roles in developed countries, opportunities for them might persist even though the gap between *overall* demand and supply were closing.

4. Even if the numbers actually migrating were to fall drastically over the next few years this would not be the end of the brain drain and its related problems. As things now stand the training institutions of the Third World have the capacity to produce increasing numbers of internationally acceptable and potentially mobile professionals, to be added to the world's 'reserve army' of high-level manpower to be drawn on at will by the developed countries. As will emerge in what follows,

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*See UN ECOSOC (1975) for a review of relevant statistical sources and gaps.

†See UN ECOSOC (1974) UNCTAD (1975), De Voretz and Maki (1975) Balacs (1975) for discussion of these series.

‡See below, para. 33 for further discussion.

§The term 'brain drain' refers to professionals who leave their country of origin either permanently or for extended time periods that are unrelated to sponsored training.

the problem is not so much the numbers who migrate as the distortion in training systems and economic structures that their mobility implies.

5. The persistence of the problem reflects the ineffectiveness of the policies so far implemented to reduce it. This ineffectiveness stems largely, it will be argued here, from the inadequacy of the standard framework of analysis, which also misrepresents the effects of the brain drain. In the following pages the assumptions underlying, and the policy prescriptions arising from the traditional approach are examined and an alternative framework is suggested -- with alternative implications for policy.

Analysis

6. The standard framework of analysis of the *effects* of brain drain is that of neoclassical welfare economics. The typical neoclassical view is that those remaining behind suffer no loss in welfare as a result of the migration of an educated person from a poor to a rich country. Grubel and Scott (1966, p.270), for instance, maintain that "the emigrant removes both his contribution to national output and the income that gives him a claim to this share, so that other incomes remain unchanged". Even in its own terms such analysis is fallacious. The proposition that brain drain will leave the income of those remaining behind unchanged holds only if a *marginal* loss of a single skilled worker is involved. But, as Sen remarks (1969, p.4), "who is really interested in a one-man brain drain?" It is easy enough to show that, given normal neoclassical assumptions about demand conditions, the loss of output resulting from substantial emigration will exceed the consequent fall in the wage bill. In other words the average income of those remaining behind will fall; in which case there is a situation in which some (the emigrants) gain and some (the non-emigrants) lose and whether the results are regarded as net gain or net loss will depend on how the income units of each group are translated into welfare units. It seems at least plausible to suggest that when, as is usually the case, the gainers already have considerably higher incomes than the losers there is a presumption in favour of net loss from brain drain.*

7. Moreover, so far the argument has accepted the underlying neoclassical assumption of perfect competition in the relevant markets. In the real world of market imperfections, however, the impact of a skilled worker on an economy is not completely reflected in the size of his income; there will be indirect or 'external' effects on the output and incomes of others (such as, e.g. a doctor's effect on the health and physical productivity of the labour force, and an agronomist's on farmers' crop yields etc.). The usual neoclassical attitude to such externalities might be summed up as "because no-one has yet demonstrated that these externalities are significant, we can disregard them". A more convincing recognition of the reality of the disintegrated and administered labour markets of the Third World would be to concede that not only are externalities important but that they are likely to be significantly more important for developing countries than for developed ones.

8. In fact it is interesting to note that the most careful attempt to measure the effects of brain drain within the neoclassical framework (UNCTAD, 1975) does concede this point, defining benefits lost to the developing country and benefits gained by the developed country in terms of losses and gains of lifetime income streams, *but adjusting for estimated externalities and for intramarginal gains or losses in excess of those indicated by market wages and salaries.* On this basis, using the actual figures for the numbers of Third World immigrant engineers, physicians and social and natural scientists into the United States in 1970, the authors calculate that this immigration represented a transfer to the US of around $3,700 million, compared with US development assistance to developing countries in the same year of $3,100 million.

9. As might be expected neoclassical analysis of the *causes* of brain drain puts the emphasis heavily on economic motives. The standard hypothesis, the one that most empirical work on brain drain has set out to test, runs broadly as follows. The net inflow of educated persons from a poor to a rich country will be the greater, the greater the relevant salary differentials between the countries; the easier it is for an immigrant to get an appropriate and satisfying job in the rich

*The resort to more sophisticated 'production-function' models (e.g. Johnson 1967, Kenen 1971, Grubel 1975) does not alter the validity of this conclusion. See Sen (1969) and Bhagwati and Rodriguez (1975) for discussion of such models.

country; the more difficult it is for a potential emigrant to get such a job in the poor country; and the lower the cost of migration and relocation in the rich country.

10. There can be little quarrel with the view that economic considerations (thus broadly defined) predominate. Certainly this is what migrants tend to tell surveyors inquiring into their motives. The recent UNITAR survey (Glaser 1974), for instances, carried out in France, Canada, the US, Sri Lanka, Greece, Ghana, Brazil and Colombia, suggests adequacy of income, quality of jobs, number of jobs and the interests of children as the strongest influences on migration plans at all stages. Similarly an earlier UNITAR (1971) survey of Cameroon, Colombia, Lebanon, the Philippines and Trinidad and Tobago found the economic factor, including the employment situation, working conditions and salaries, to be the most important one.

11. However, this does not necessarily mean that rates of migration respond to *marginal changes* in these economic variables. The data are too poor to be confident about the results of regression analysis, but the hypothesis that the pattern of immigration is related to (i) the income difference between the country of origin and the US and (ii) cost of transportation involved in the movement does not come well out of an analysis by Sen (1971 and 1973) of immigration of less developed country engineers, doctors, dentists and natural and social scientists into the US in 1966 and 1967. Except for the case of doctors and dentists, where special institutional factors apply, the strongest explanation of the pattern seems to be in terms of the number of students doing graduate work in the US. These results are highly tentative, but in general they are consistent with the fundamental critique of the standard framework, to which the discussion will now turn.

12. The fundamental inadequacy of neoclassical analysis of brain drain derives from the fact that it deals with the response of individuals to a number of variables without taking account of the *structure* within which individual decisions are made and of the relevant interdependencies and dynamic effects.

13. The most important aspect of this structure is the existence of an international market in professional skills into which the educated elite of the Third World is more or less integrated, to the benefit of their salary levels and, in a process of institutional determination of salaries, those of all who can plausibly claim 'comparability' with them.* The condition of integration into this international market is the possession of *internationally negotiable qualifications* and international negotiability implies, to a varying degree, lack of relation to local needs. In other words Third World professionals acquire international mobility either by studying abroad or by attending a local institution with curricula and syllabi appropriate to the job context of the developed rather than the less developed countries.†

14. In addition to this qualitative distortion of education and training systems the tying of local professionals into the international rather than the local market, and the consequently higher anticipated private rate of return on their training open to them, *build in* an overproduction of inappropriate skills as the state responds to the excess demand for training school places by building more training schools or by sending more students overseas. This is the point overlooked by economists who talk about overflow rather than drain. Their view‡ that the brain drain is no problem because there is a surplus of educated manpower at home can be seen to be excessively static, to say the least.

15. All this fits in well with Sen's conclusion, already discussed (para. 11), that the most powerful explanation of the pattern of Third-World immigration into the US is provided by the number of nationals doing graduate work in the US. Some qualifications, clearly, are more negotiable than others and none more so than those of a receiving country's own graduate schools. In general one might predict that the less internationally acceptable are the qualifications obtained (whether at home or abroad) by a category of professionals the lower the incidence of brain drain. This general line of reasoning is supported by Myint (1968) for example, who observes that one of the

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*See Godfrey (1970 and 1975) and Bhagwati and Hamada (1973) for further discussion.
†See Ozlak and Caputo (1973) for a discussion of these issues in relation to the Latin American medical profession.
‡e.g. Baldwin (1970): "The less developed countries are not being stripped of manpower they badly need; more often than not they are being relieved of manpower they cannot use".

reasons why "the actual brain drain of engineers from Asian countries has been much less than of doctors" is that "professional affiliations between the advanced and the underdeveloped countries seem to be weaker for engineers than for doctors, so that an engineer trained in Asia is less likely to obtain a professional appointment in the United States or Britain without further training in these countries" (p.241). It must be stressed that the point at issue is not so much this international negotiability and consequent mobility as such, but the effects these have upon the possibility of creating more relevant professional cadres within the Third World.

Doctor case study

16. The brain drain is made up of many kinds of professionals, and of movements between different types of countries. However, serious international public concern over the brain drain issue has been reserved primarily to the movement of professionals from the less to the more developed countries. This continues to be the situation despite the increasing volume of professional migration from poorer developing countries to, in particular, oil and other mineral rich parts of the Third World. In some countries movements of this latter type are even being encouraged as an alternative to emigration to industrialised countries, and also because they are not generally of a permanent character. Such movements are also sometimes supported/justified on the basis of their potential for creating feelings of political solidarity between Third World countries. In any event the volume of movement of professionals from, say, the Indian sub-continent to the Middle East is still far less than to the industrialised countries and although such movements are still on the increase they are characterised more by circulating than one way flows (although some migrants use a posting in the Middle East or Africa as the basis of a further move to Europe or North America). It remains the case that the movement of professionals from developing to developed countries remains at the heart of the brain drain issue as a matter of significant international public concern.

17. The out-migration of Third World professionals has been dominated by movements to the industrialised English-speaking countries; that is, the United States, the United Kingdom, Canada and Australia. There are also relatively important flows into the Federal Republic of Germany and France. Because such a substantial part of all professional education within the Commonwealth is in the English language, its graduates are especially at risk with regard to future emigration. Movements within the Commonwealth itself are also facilitated by similarities in higher education and professional institutional structures.

18. The professional composition of the migrants varies according to country and has changed over time in keeping with the needs (demands) particularly of industrialised countries. The groups that have dominated the migration statistics since 1967 (the year US professional immigration rose by over 60%) are scientists, engineers and doctors. In spite of the overall significance of these categories there are other, smaller groups that constitute areas of concern in particular countries, for example accountants in Sri Lanka and teachers in the Commonwealth Caribbean. Although there are conditions that are specific to the migration of each category of professional and to each country, there are also broader and more significant issues that apply more or less 'across the board'. These issues are well illustrated in the case of the migration of health workers in general and doctors in particular.

19. Within the United Nations and most other international bodies concern over the brain drain extends to all categories of professional migrants. However, within both donor and recipient countries it is doctor migration that tends to generate the greatest volume of interest and feeling. It is also important to note that even in quantitative terms doctors migration has come to dominate international professional movements as the increased output of science and engineering graduates in the United States in particular, coupled with economic recession, has reduced the demand for immigrants with these skills.

20. Doctors and other health workers, then, constitute the most significant group of migrants from the point of view of both developing and developed countries. The flow of doctors from developing to developed countries is limited primarily to movements into the United States, the United Kingdom and Canada, with minor flows to a few other countries. It must not be imagined that the countries into which the doctors are migrating are receiving them with enthusiasm: in fact they are acceptable only because they are meeting an existing demand for a greater number

of doctors (or nurses etc.) than the recipient countries have been able (or willing) to meet from their own resources. The most important question that arises with regard to this migration is why the Third World continues to supply medical doctors and other health workers to meet the needs of a few western industrialised countries, thereby depriving themselves of significant numbers of their own scarce health workers.

21. Perhaps because the medical brain drain is most often discussed by members of the medical profession the stock 'solutions' offered for the problem appear to be directed primarily toward costly improvements in the training and working conditions of the potential migrants. It is the contention here that it is just such improvements that have created in the past, and are encouraging now, the basic conditions that have led in the first place to international medical migrations; that is, they widen further the gap between effective economic demand for medical skills and the cost of utilising these still more expensively trained and paid medical practitioners. In fact, the international migration of doctors is primarily the result – as well as a measure – of the maltraining and related malutilization of medical manpwer, and graduates in particular. In the broader sense this is equally true in the case of the United Kingdom or India.

22. Medical migration is a reasonable response to national and international inequalities in the distribution of income. Like other workers, doctors sell their wares in the market place. In fact the present national and international distribution of the stock of doctors and the flows of additional medical graduates are closely correlated to the overall pattern of income distribution within and between countries. The distribution of doctors not only reflects income inequalities, but is in itself a part of that inequality. It is a stark truth that medical skills are not distributed in keeping with need – as shown by morbidity and mortality indices – but rather in accordance with the workings of the market place in a world of sharp income equalities. The same conditions that encourage a concentration of medical skills in the metropolitan areas of Third World countries assure the international movements of these same skills.

23. Given the poverty of most of the population of developing countries, a health care system which is either part of or oriented to the private sector and those with money incomes will become virtually irrelevant (in any positive sense) to at least one of the 'two nations' which comprise each underdeveloped country. The permanent migration of high level medical manpower arises from the production of personnel to meet the health care requirements of both nations: the one which can pay for the services of medical doctors and the one which cannot. It has even been argued by those who accept the market place as the final arbiter of who shall or shall not enjoy the benefit of medical care that there is, in fact, no brain drain of professional manpower, but rather only an 'overflow' relative to effective economic demand.

24. The picture, then, is something as follows:

(a) Traditional medical education is based on the values and requirements ('standards') of those with sufficient income to purchase private medical care; at the same time the 'native practitioners', who are the only ones able to meet the effective economic demand of those with very small (or no) money income, are labelled as quacks and either barred from practice outright or forced to operate without benefit of state support either for facilities or training. On the same basis there is opposition, usually successful, to the production of medical assistants and other types of alternatives to the graduate medical practitioner.

(b) Based upon a desire to change existing national doctor-population ratios that are very different from those to be found in industrialised countries there is increasing pressure for the training of greater numbers of doctors; additional medical graduates then lead to the demand for postgraduate specialisations and large urban, especially teaching, hospitals as places of employment; these in turn lead to more graduates and specialists. There is then little left for basic rural primary care services or even for basic pharmaceutical products, especially at the 'periphery', as doctors' salaries and other related specialised requirements take up an ever-increasing proportion of very limited health sector resources. The privileged position won by the doctors encourages the entire process until there is an over-supply relative to the employment aspirations of the graduates and they emigrate, if they can. Meanwhile, the bulk of the population remains without benefit not only of doctors' services, but of any type of health worker at all.

(c) An important element in all of this is the growing demand for higher education for the children of an expanding middle class. At the same time these same middle classes provide the major markets for doctors' services. However, there cannot be doctor – (middle class) family ratios that are low enough to prevent oversupply relative to effective economic demand. The very expensive training costs of medical doctors (which are so high just because they are trained in keeping with private sector 'standards' and traditions) means that most of the population cannot possibly afford the expectations/requirements of the medical graduates. Therefore, there is an 'overflow' of these graduates to those parts of the world where demand is greater than the current supply of doctors, most notably North America. (The movement to Britain has been largely a replacement of those Britishers who have already emigrated.) The very possibility of lucrative overseas employment, in turn, encourages the output of still greater numbers of medical graduates having no prospect of employment in their home countries. Even now, in some countries at least, medical graduates are consciously being produced for the international market.

25. The market for doctors of the type currently being trained is extremely limited in the context of most Third World countries. Although a more equitable distribution of income would probably lead to a greater overall demand for the services of medical practitioners (including those of a non-graduate variety) it might also lead, in the short run anyway, to a decline in demand for those services being produced by highly specialised graduates and an increase in emigration of such people. In practice this would depend upon the rate at which income redistribution and the consequent demand for different types of medical practitioners was to proceed, the volume of output of graduates from the medical schools, adjustments in medical school curricula, government policies with regard to the control of intending emigrants, and the level of international demand for the potential emigrés. The precise balance of such factors could only be found in the context of specific countries. In any event, it is broadly the case that so long as doctors are trained in keeping with private sector traditions and the requirements of a very limited urban middle class, just so long will there be an 'overflow' from those countries with a small demand for such training to those with a greater (unmet) demand for such skills.

26. In Asia it is possible to see most of the distortions that arise from overproduction of the wrong type of medical practitioner. This overproduction has led to the massive migration of medical graduates from such countries as India, Pakistan, Sri Lanka and the Philippines. In response to this situation Sri Lanka has curtailed medical school output and India ended expansion of intake, but Pakistan and Bangladesh are in the process of doubling intake into medical schools, at least partly to make up for emigration. In some Indian states the glut of doctors demands that virtually all health planning be centred around the need to employ these high status professionals, thus further distorting the health delivery system. In the Philippines the output of doctors is very much related to the American market for the product. In almost all countries the relative or absolute over-supply of medical graduates having an almost totally hospital oriented training is adding to the pressures for the construction of still more urban hospitals rather than higher priority rural facilities.

27. In a number of countries extensive emigration is coupled with inflows from other countries. Thus Caribbean Commonwealth doctors emigrate to North America and Nigerian and Ghanaian medical graduates find employment in the United Kingdom, while their governments recruit replacements from countries such as India and Sri Lanka. There are also movements from smaller and poorer countries to larger and richer ones within given regions e.g. the Caribbean Commonwealth or West Africa.

28. The training of doctors, with respect to both numbers and curriculum 'standards', is based upon the assumption that health care delivery systems must be based upon the availability of professionals with up to 20 years of basic schooling and medical education, which then can become the basis for many more years of specialist training. These assumptions are held in spite of the well established and publicised fact that in all countries of the world the vast bulk of illness and mortality does not require the attention of highly trained practitioners of the medical sciences. Of course, this situation is particularly clear in countries characterised by levels of infant mortality of anywhere between 50 and 200 per 1,000 live births. The type of training under discussion also reinforces the desire for urban/hospital/private medical practice to the detriment of rural/health centre/public health work.

29. The number of highly trained medical practitioners (registered doctors) planned for production is generally based upon some sort of doctor-population ratio. Such ratios not only do not consider the basic disease pattern of a country, and thus the need for doctors, but also ignore the possiblities for medical graduates to fulfil their employment expectations and the consequent effects upon their distribution and functions. In fact, the planned output of doctors is generally not even related to the availability of other types of health workers. Thus the illogical situation arises of there being more doctors in employment in many countries than there are nurses or other categories of key paramedical and auxiliary staff. In some parts of the world there can be found doctors in rural clinics without either supporting staff or the possibility of doing immunisations or providing a drug, at least partly because health ministry budgets have been so badly distorted by the need to provide salaries for expensively trained doctors (and in some cases registered nurses).

30. Most international migration occurs when the economic demand for general or specialist doctors' services in a particular country has been saturated (although in certain instances the situation has been reached in which students are trained specifically with the intention of emigrating). At present urban demand is great enough to support about as many doctors in the capital city of many a developing country as can by found in a large European or American city. However, effective rural demand cannot support more than a handful of conventional doctors per million of the population. The only way to change that rural ratio is to change the level of demand and so make it possible for doctors (or non-graduate medical practitioners) to find employment in the rural areas or small towns of their own countries rather than abroad. (It must be added that effective economic demand need not be stimulated only through financial payments to doctors, in the form either of fees or salaries, but hrough the provision of a number of other employment incentives.)

31. On their arrival in North America or the United Kingdom doctors and nurses from the Third World mostly take up low status employment in the less desirable hospitals. In fact without the presence of tens of thousands of doctors from the less developed countries the hospital systems of the United States and United Kingdom could not continue to function. The dependence of these countries on foreign medical graduates is a reflection of deficiencies in their own training programmes, and/or systems for delivering health care.

32. The unmet demand for medical doctors has been most marked in the United States. This situation has arisen because, primarily as a result of pressure from the organised medical profession, intake and output from United States medical schools had been held more or less constant from the end of the Second World War to the late 1960's. In the interim United States demand for doctors had become so great that by 1973 there were over 12,000 *new* medical registrations in that country of foreign medical graduates (55% of the total of all new registrations*). In that same year, of almost 16,700 licentiates representing additions to *unrestricted* medical practice in the United States over 7,400 (44.5%) were graduates of foreign medical schools. Well over three-quarters of these graduates were from developing countries. One US study (Haug and Stevens 1973) found that of all foreign-educated doctors in the country in 1963 almost 84% were still there in 1971. Of those who had come to the United States nominally for temporary training 74% were still resident in the country at the end of the eight year period. Estimates for the United Kingdom indicate that in the years preceding 1973 and 1974 the gross annual inflow of doctors into the country came to about 3,000, with the net gain by the United Kingdom being about 1,000 per annum. In 1973 and 1974, the gross inflow is estimated to have been 2,000 and the net gain 1,300. The year 1975 may have seen a balance inflow and outflow of about 1,000 in each direction.

33. The policies of key industrial countries concerning the immigration of (especially) Third World doctors are being reshaped in keeping with very substantial increases in output from their medical schools. In the United States medical school intake has almost doubled over the past decade and will provide an output by 1980 of approximately 15,000 per annum. In Britain medical school intake has increased by about 50% over the past decade and will have almost doubled

*However a recent study (Stevens et al 1975) indicated that there has been consistent overestimation, based upon double counting, of the total number of medical immigrants into the US.

by 1980 to provide an output of over 4,000 graduates per annum. Canadian output had doubled by 1976 from its 1963 base of around 800. In Australia the 500 medical school graduates of 1962 will have increased to over 1200 by 1980, and in New Zealand output will have almost tripled from 110 to 320 during the years 1972–1981. Taken together, medical school output in the four wealthy Commonwealth countries will have increased by around 150% between the early 1960's and 1980.

34. Although it may be some years before it will become possible for medical employers in countries such as the United States or the United Kingdom to find citizen replacements for all the foreign-born doctors already in their countries not yet in protected types of employment (e.g. junior hospital doctors) current output from their medical schools should be sufficient to reduce rather quickly the intake of additional immigrant doctors. In fact, as a result of increases in output coupled with growing concern over many aspects of the medical brain drain, Britain, Canada and Australia have already taken major steps to limit medical immigration. Although similar new initiatives have not yet been undertaken in the case of the United States, based upon the current state of discussion in that country there is reason to anticipate the development of more restrictive medical immigration policies in the not too distant future. It is worth noting that the reduction or end of medical migration to Canada and Australia and possibly the United States will also mean a sharp reduction in British medical emigration and thus that country's dependence on doctors from abroad.

35. As a result of new immigration policies on the part of the industrialised countries it is likely that over the next five to ten years medical migration from the less developed to the industrialised countries will have been reduced very substantially, perhaps to a very few indeed. This fact seems not yet to be sufficiently appreciated and apparently in some countries at least there is discussion/planning for increased medical school output based upon the expectation of continued doctor migration. This discussion takes the form of acceptance of medical migration as a continuing fact of life and sometimes even proposes payments to donor countries by recipient countries for the 'lost' doctors who, presumably, then would be trained even more closely in keeping with the needs of the receiving industrialised countries. To expand medical schools on the basis of expected continued migration would be a grave error and could only perpetuate the continued production of an inappropriate type of graduate. The situation has gone so far, in some countries at least, that it almost appears as if migration has become a necessary fact of life to justify the continuing (over) production of inappropriately trained medical graduates. Actually much of the ambivalence of Third World countries over the brain drain issue is to be found here. On the one hand there is the desire to continue with the output of increasing numbers of 'internationally acceptable' medical graduates, and on the other the inability to either meet the expectations or be able to utilise very many such graduates.

36. In almost all developing countries medical education is said to be based on the dual principles of 'having medical education match the country's needs' and 'raising standards to keep up with the most modern developments'. Of course, these 'most modern developments' are determined by contemporary practice in London or New York, and consequently are mostly unrelated to the problems and possibilities of developing countries. Although the highest of *relevant* standards must always be aimed at, if it is the case that the standards by which medical education is actually measured are not relevant to, say, India or Ghana then it is highly unlikely that the 'raising' of those standards will increase the quality of medical care available to most Indians or Ghanaians. In the conflect between 'relevant' medical education and higher 'standards' it is invariably the relevance that loses out, to a significant degree because of the fears of medical professionals of being 'cut off' from the greater world of medicine as it is practised in the richer countries.

37. It is likely that an end to medical migration from poorer to richer countries is likely to occur more because of increasing production and proper utilisation of medical graduates by (particularly) the United States, Canada and the United Kingdom rather than from any other single factor. The question then will be whether or not Third World doctors will be willing to accept work in the smaller towns of their countries (if not the countryside itself) in the absence of international alternatives, or whether they will leave medical practice entirely. The basic problems connected with the brain drain of medical doctors are unlikely to be solved as long as countries continue to

(over) produce inappropriate types of medical graduates. If medical doctors continue to be trained by poor countries to fill non-existent teaching hospital/consultant type posts, it will be inevitable that at least some of them will (attempt to) emigrate to richer countries that have been unable to meet from their own resources the demand for those services. If we begin with a situation in which some parts of the world are rich enough to support a high level of economic demand for medical services while others cannot, and then allow free market forces to determine the allocation of scarce medical resources, inevitably doctors as presently trained and utilised will (attempt to) move in the direction of the richer regions of the world.

38. International medical movements are particularly harmful in the ways in which they help to distort the educational and health care systems of developing countries. Given the nature of these systems, the medical brain drain is not by itself a problem: either jobs do not exist for those who emigrate or else health workers will not take those that are available. It follows that the return home of the emigrants is not by itself a good thing. Data on returned doctors (Gish 1971) show that they do not work outside the urban areas, and many leave the public sector altogether in favour of private practice. Even the further emigration of those who have already been 'programmed' by their education to join the ranks of the migrants need not be considered a very serious problem. What does matter is that countries which are losing their graduates learn from their experience and act upon it. The international movements discussed here are the logical extension of the kinds of health care systems to be seen in most developing countries. So long as health care is primarily available within the traditions and context of the market place it is inevitable for any oversupply of doctors (relative to economic demand in any particular national context) to overflow into the world market, and the very existence of this world market will prevent the market mechanism from bringing the supply of doctors into line with demand. Even in the United Kingdom, where health care is largely free at point of delivery, the oversupply of specialists relative to specialist (consultant) demand as determined by the National Health Service, coupled with buoyant North American demand for specialist services, is making for continued medical emigration.

39. The question of international medical migration is of interest not so much in itself, but because of what it reveals about the nature of particular health care systems and the socio-political structures in which they operate. If everything else were to stay much the same the reduction of medical emigration would probably make no difference at all to the welfare of most of the population of countries such as India or Jamaica. In the same vein, the solution to the problems raised by these international movements are not to be found within the movements themselves but in necessary changes within the framework of specific national health care systems and, of course, the social, political and class structures in which they exist.

Policy recommendations

40. Most of the usual policy prescriptions on brain drain are derived from the neoclassical framework of analysis. Within this framework the archetypal prescription is that nothing should be done about it since the gains from brain drain on a world scale outweigh the losses, even though these are not equitably distributed between countries. It has been argued that such complacency is unjustified on the grounds both of the internal logic of the economic theory on which it is based and of its neglect of more fundamental issues.

41. If it is accepted that there is a problem but an orthodox view of its causes is still taken, then the solution implied by neoclassical analysis is that of change in monetary rewards and working conditions. A typical statement of this position is that of Baldwin (1970, p.370), summarising the recommendations of the 1970 Education and World Affairs (EWA) committee of which he was a member: "The EWA viewpoint amounts to saying that professional men the world over have much the same requirements for job satisfaction and, unless the traditional cultures and pay scales of many brain-losing countries (developed and less developed alike) can adapt to these requirements, then, in Kenneth Boulding's phrase, 'high-level manpower with get-up-and-go will get up and go' ". Similar recommendations, if less forthrightly expressed, can be found in countless national and international reports on brain drain, including for instance that of a committee of the Sri Lanka Cabinet (1974, pp.36–49) and the Colombo Plan Bureau (1972, p.4).

42. The problem with such recommendations, even in their own terms, is that the changes in monetary and non-monetary rewards necessary to stop the brain drain may be much larger than is practically conceivable.* A similar point might be made about changes in standards of working conditions. Moreover, to try to pay international transfer earnings to the internationally mobile (particularly since other groups of top salary earners would plausibly claim 'comparability' with them) would not only reduce the numbers that could be absorbed at home but would also make domestic income distribution even less equal.†

43. The difficulty of meeting international (i.e. rich country) wage and other employment standards may be one reason why policy prescribers and governments often resort to emigration controls and bonding schemes intended to control potential emigrants. Controls over passports and foreign exhange obviously can be an effective means of preventing people from leaving a country where the will and capacity to operate them efficiently exists. Bonding schemes may be less effective in this respect, only postponing the date on which people leave rather than preventing their leaving and inviting ingenuity in evading bonds on the part of those trained at home and bond breaking by those trained overseas.‡ Moreover a problem with both controls and bonding schemes is that those retained by these methods are likely to be frustrated, demoralised and conservative, forming a particular obstacle to programmes of reform such as those discussed below. However, it is also possible for such groups later to become radical dissenters from the 'system'.

44. Still within the neoclassical framework another policy prescription might be to reduce the salary gap and incentive to migrate by effectively lowering the rewards of migrant professionals at their destination rather than raising their rewards at home. This in effect is what the recent 'Bhagwati income tax' proposal amounts to (Bhagwati and Dellafar 1973). A tax, which could be progressive or proportional, would be collected from immigrant less developed country (LDC) professionals by the tax authorities of the host developed country (DC) over a limited period and eventually handed over under United Nations auspices to the government of the country of origin. The impact of such a scheme would obviously depend on the elasticity of response to the tax. If, as preliminary calculations§ suggest, tax rates would have to be unacceptably punitive for the tax to have more than a marginal effect on the number of migrants the scheme would be little different in effect from straight govenment-to-government compensation (as recommended, e.g., by UNCTAD 1975) or, for that matter, from the contracts actually signed for the 'export' of professional manpower from LDCs (e.g. Filipino nurses to Austria and South Korean nurses and aides to West Germany, Switzerland and Japan). Such schemes amount in effect to an acceptance of the debilitating structural consequences of integration into the international market for professional skills, already described above. This applies particularly strongly to the export contracts, which institutionalise a continuing distortion of training and education systems and salary structures in the country of origin. Vigorous pressure by Third World governments under UNCTAD auspices for compensation for brain drain must of course continue, but compensation cannot be seen as a 'solution' for the problems involved.

45. So far the discussion has been concerned with the policy implications arising from the standard neoclassical framework of analysis and has found such policy measures to be as unsatisfactory as the framework on which they are based. If on the other hand an alternative framework of analysis (already discussed, paras. 4–15) which regards brain drain as a reflection of integration into an international market in professional skills is adopted, then the only way of achieving a substantial impact on the drain (and on the more serious internal distortions that it reflects) is *withdrawal from that market.* This would involve substantial changes in educational policy aimed at training for internal needs rather than for external markets. As the authors of the United Nations ECOSOC report (1975, p.24) point out, a "policy to train personnel to be functional in the environment of developing countries will have the direct effect of making them dis-functional for

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*e.g. See Sen (1973, p.403).

†See above, para. 13, and Godfrey (1975) for further discussion of this international-transmission-of-inequality effect.

‡See Senewiratne (1975) for examples of Sri Lanka's experience.

§e.g. see Psacharopoulos (1975) and De Voretz and Maki (1975).

the developed countries and thus reduce their migration". It would also have wider implications, as will emerge.

46. Questions of political feasibility are obviously raised by such a policy, but before confronting them it is important to be clear about the range of policy possiblities implied by a programme of withdrawal. The Commonwealth offers a unique forum for the discussion of mutually agreeable solutions to problems but it may be useful, to begin with, to distinguish between policy measures to be taken by LDC governments and those to be taken by DC governments.

47. *For LDC Commonwealth governments* a programme of withdrawal from the international market in professional skills would involve the following:

(a) An end to the use of DC (usually British) qualifications in local training institutions, in the few cases where this practice continues.

(b) An end to the sitting of foreign professionsl examinations in LDCs (particularly the US ECFMG) and to advertisment and recruitment for posts in DCs (in this respect the operation of DC based correspondence colleges might also be looked into).

(c) Disaffiliation from DC dominated international professional associations, which usually see the establishment of a common standard and inter-recognition of national qualifications as one of their aims, and exploration of the possibility of setting up associations of LDC professionals committed to greater relevance: obviously this would involve a critical re-examination of the role of Commonwealth professional associations. As Johnson and Caygill (1972, especially Ch.11) show, most Commonwealth professional groupings are working towards the establishment of a common standard, with particularly tight systems of inter-recognition in the medical and architectural professions.

(d) The sending of students on more relevant and thus probably 'less negotiable' overseas courses, in cases where the training was not currently available at home, and preferably on relevant courses in other LDCs.

(e) The development of local courses and qualifications which were both highly suitable to the needs of the indigenous economy and therefore probably less acceptable to DC employers and training institutions. In the case of the medical profession the principles on which such redesigning would be based are fairly clear. In the case of production-based professions (e.g. engineering, accountancy) the task of changing the content and balance of training might be more difficult, but even a change in length of courses and title of qualifications would affect negotiability – and the process would be reinforced by the other policy measures. To gain support for this policy the cost to the nation of an individual's (inappropriate) higher education should be well advertised.

(f) The development of new centres of higher education and training on a regional LDC basis as an alternative to DC training in cases where skills are too specialised and/or needed in too small quantities to justify providing training at home.

(g) The use of a national language as the medium of instruction in courses and textbooks, an important aid to insulation as in the cases of Japan and China.

(h) Changes on the demand side, i.e. in the structure of rewards and in job content. The opportunity, offered by withdrawal from the international market, would be taken to bring the structure of rewards (and associated private rates of return on different types of training) into line with social priorities, since there is little point in trying to reform education and training in the face of contrary pulls from the market. At the same time a redefinition in job content, again in line with social priorities, would be needed, parallel to the educational reforms already discussed.

(i) The use of scholarships policy, foreign exchange and passport controls to discourage overseas study for the acquisition of negotiable qualifications. This might be reinforced by making local/relevant postgraduate training and experience pre-conditions for government employment.

(j) Recognition of the wider implications of such a programme. For instance, in the case of production-based professions changes in job content would probably imply changes in tech-

nology, which may not be possible without changes in the nature of products, and these changes in turn may be dependent on changes in the structure of consumer demand and thus income distribution and social structure. Moreover, because multinational corporations bring the international market for managerial skills to the doorstep of many Third World countries, representing a second form of integration into the international market, they would have to be dealt with if the full benefits of withdrawal to the local wage and salary structure were to be obtained.* In other words, when all the interdependences are taken into account withdrawal begins to look somewhat comprehensive.

(k) The restriction of the output of professionals by LDCs to the number that can be absorbed at home, even at the risk of some shortages in the short run.† This would be an attempt to break the dynamic, circular interconnection between excess supply in LDCs and excess demand in DCs. The knowledge on the part of DC authorities that the supply of 'excess' Third World professionals is likely to dry up would be a powerful impetus towards DC self-sufficiency. And, as already emphasised, withdrawal from the international market in skills would itself reduce the pressure of demand for places in LDC training institutions, thus easing the task of reducing intake into and output from these institutions.

48. Of course it is one thing to set out the logical implications of the objective of ending brain drain and the internal distortions associated with it, and quite another to recommend these measures as an immediately implementable programme in all countries. Members of the affected professions in most cases would feel bound to oppose such a policy. Moreover, government decision takers themselves might well be unwilling to dismantle a structure which yields them substantial benefits of one kind or another. A prerequisite of implementation of a programme of withdrawal would be the existence of a government willing to transcend such narrow material interests and capable of either gaining the cooperation of the established professions or by-passing them. As far as short term strategy is concerned, in most countries it might well be better to avoid confrontation with the established professions, allowing their members to come and go freely without trying to force (or bribe) them to stay at home. The use of special incentives and controls to retain the internationally mobile may reduce net outflow in the short run, but could strengthen the opposition to a longer-term solution. Initial concentration on the more positive elements in the programme, such as the establishment of new training centres, might also be strategically advisable.

49. *For DC Commonwealth governments* a programme of withdrawal, or disintegration of the international market in professional skills, would imply the following:

(a) Cooperation with LDC governments in the phasing out of the use of DC qualifications and in the withdrawal of DC examinations, recruiting teams and advertisements from LDCs.

(b) *In consultation with LDC governments* the withholding of recognition by DC authorities of LDC qualifications and the control of LDC entrants to training courses in DCs. A decision such as that recently made by the UK General Medical Council to withhold recognition of Indian medical qualifications (if it were made in consultation and not unilaterally as was the case) would be welcomed by LDC governments, in the context of a programme of withdrawal, rather than deplored as an affront to national dignity.

(c) A sympathetic attitude towards the reshaping of international professional associations, particularly those of the Commonwealth, along the lines suggested above.

(d) A change of emphasis in the provision of technical assistance awards towards third country training, particularly for courses in other LDCs, but also allowing for the possibility of attending more relevant and less negotiable courses in other DCs. The aim would be for an accelerated reduction in the number of LDC trainees in developed countries, again in consultation with LDC governments.

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*See Godfrey (1975) for further discussion of these issues.

†The concept of a 'shortage' of manpower is extremely complex and encompasses many variables. The replacement of expatriate personnel is one such important variable. With regard to health manpower, it is necessary to take into account the requirement for specialist staff, so as to end dependence on foreign personnel, within the context of overall and balanced manpower planning.

(e) Technical assistance for the redefinition of job content in LDC professions in line with social priorities, and for the development of the alternative curricula, syllabi and structures implied by this redefinition; also for assistance with manpower planning directed towards creating a closer match between the output of LDC professional manpower and absorption capacity.

(f) As a major part of the educational assistance programme, support for the development of the new regional centres of relevant higher education and training. This would include finance for the necessary feasibility studies and surveys of past experience in such cooperation, as well as for the current capital and recurrent costs of the institutions.

(g) If requested and if feasible, assistance for the development of courses and textbooks in 'non-international' languages.

(h) Also, if requested, assistance with studies of the problems involved in bringing the structure of effective demand into line with the social priorities reflected in the redesign of job content, etc.

(i) Continued progress towards self-sufficiency in the DCs' markets for professionals. The problem in the past has lain in the awareness by DC authorities of the advantages (in cost terms anyway) of importing professionals rather than training their own. It seems that professional associations in DCs are now beginning to become aware of the implications for their own material interests of this process and hence abandoning traditional policies of restricting their own numbers as well as pressing for a reduction in reliance on immigrants. DC authoities, in consultation with their LDC counterparts in the Commonwealth, should continue to accede to this pressure and resist the temptation to draw on the still large reserve army of Third World professionals. In keeping with this policy closer monitoring of the flow of LDC professionals into and out of DCs would be required.

50. The implications of the above programme have been spelled out separately for LDC and DC governments, but it goes without saying that, within the Commonwealth, the most effective mode of implementation would be through mutual consultation and agreement between the governments of the less *and* more developed countries. Moreover, it is recognised that the very implementability of a programme of withdrawal and the optimum strategy for such implementation will vary from country to country. As such, it would be useful to study under different circumstances the possibilities and potential effects of the implementation of the recommended strategy of withdrawal. Rather than continue with general 'brain drain studies', which would imply that too little is as yet known about the phenomenon even to be able to propose a strategy of action, research on particular professional groups should be conducted in specific countries with a view towards testing the applicability of the framework put forward in this report. In practice, the best way to give specific form to the general policy recommendations suggested in this report is to study and plan for their application in the case of a particular professional group (or groups) under specific national conditions. For many of the reasons indicated earlier, doctors constitute a particularly interesting group for study. Commonwealth governments should be asked to express potential interest in such studies. Appropriate funding is likely to be available from any one of a number of bilateral and multilateral sources.

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A NOTE ON OVERSEAS NURSES IN BRITAIN*

One major difference between the overseas nurses in Britain and the doctors is that in the former case the great majority receive their basic training in this country, rather than enter already qualified. It is, however, very difficult to estimate the extent of immigration of already trained nurses into the UK. The Department of Health and Social Security, for example, does not publish statistics showing the numbers of nursing staff who are of overseas birth, unless they are in training as students, pupils or pupil midwives. The ordinary immigration statistics, such as those relating to entrants to Britain who were subject to the Commonwealth Immigration Acts, have serious limitations for our purpose. The General Nursing Council for England and Wales keeps statistics of overseas trained nurses who are accepted for its register; however, it has no way of knowing what proportion of the overseas trained who go on its register actually enter the UK, or how long they spend there. As far as midwives are concerned, the Central Midwives Board (CMB) does not permit direct enrolment of those with overseas training, who are required to spend a qualifying period in the UK. In 1975, less than 1½% of the three-and-a-half thousand midwives who were newly entered on the roll had qualified initially in other countries, and then complied with the CMB's conditions.

Turning now to the trainees, concerning whom figures are regularly available from the DHSS, the proportion of overseas born students, pupils and pupil midwives has been around 25% since the early 1960s. About half of these trainees have been recruited directly from addresses in their own country, rather than after taking up residence in the United Kingdom. In 1974, there were 16,108 overseas-born trainees (21% of all trainees): 11,934 were from the Commonwealth, 2,155 from the Republic of Ireland, and 2,019 from other foreign countries.

In 1974, 44% of the overseas-born trainees were recruited directly from addresses in the UK. There is, however, no way of telling how long they had been resident there. One likely interpretation of the figures is that nurse training has been drawing fairly heavily on the established immigrant population, as well as on those coming to Britain specifically to train. There is considerable variation in the proportion of overseas-born trainees from different countries who were recruited directly. In 1974, 82% of the Malaysians, 60% of the Mauritians, but only 21% of the Jamaicans were recruited from addresses in their country of birth.

Some changes in the picture since 1964 can be seen in Table 1. There has been a decline in recruitment from the Republic of Ireland, and an increase in that from other foreign (non-Commonwealth) countries, though even in 1974 this latter group only accounted for one-eighth of the total of overseas-born trainees, of whom more than half come from the Philippines.

Turning to the Commonwealth countries, there has been a reduction by half in the proportion of trainees coming from the Caribbean (from two-fifths to only one-fifth of the total), and a threefold increase (from 10% to over 30%) in the proportion coming from Commonwealth Asia. In 1974 a quarter of all the overseas-born trainees were from Malaysia.

In conclusion, Britain has clearly been relying on substantial numbers of overseas-born trainee nurses and midwives for the staffing of its health service. It is not easy to say for how long and to what extent such a situation is likely to continue, particularly with regard to those recruited directly from abroad. The consequences for the sending countries of this migratory flow are hard to assess, and may well differ considerably from one country to another.

*I would like to acknowledge the help given by the General Nursing Council, the Central Midwives Board, and in particular the Department of Health & Social Security (Statistics and Research Division), without necessarily associating them with what has been written.

We do not know what proportion of overseas-born trainees remain in the UK on obtaining their qualification, return to their country of origin, or go on a third country. If they return, how appropriate will their UK training have been to the situation in their home countries? If they fail to return, are the sending countries losing in any sense the 'best' entrants to the profession, compared with those who return or train at home? Questions of this kind cannot be answered without further research.

Michael N. Kendall

Countries of origin of overseas-born student and pupil nurses and pupil midwives in training, with numbers recruited in their country of birth.
All hospitals, England and Wales

	Total No. (a)	1964 %	Recr. in ctry. of birth (b)	(b) as % of (a)	Total No. (a)	1969 %	Recr. in ctry. of birth (b)	(b) as % of (a)	Total No. (a)	1974 %	Recr. in ctry. of birth (b)	(b) as % of (a)
Commonwealth												
I. Caribbean Region												
Barbados	1,352		644		902		296		285		95	
Guyana	879		334		739		295		300		113	
Jamaica	3,073		553		2,645		628		1,327		276	
Trinidad and Tobago	1,255		569		1,900		1,167		896		392	
Other Caribbean	667		184		956		443		437		146	
	7,226	39.0	2,284	31.6	7,142	36.8	2,829	39.6	3,245	20.2	1,022	31.5
II. Africa												
Ghana	397		203		560		281		527		319	
Mauritius	276		109		1,793		1,307		1,706		1,023	
Nigeria	1,173		303		552		97		386		133	
Other Africa	1,212		718		1,054		470		740		253	
	3,058	16.5	1,333	43.6	3,959	20.4	2,155	54.4	3,359	20.9	1,728	51.4
III. Asia												
Hong Kong	312		184		799		632		296		161	
Malaysia	810		545		1,881		1,447		3,925		3,207	
Sri Lanka	117		72		394		296		333		215	
Other Asia	539		225		634		303		424		128	
	1,778	9.6	1,026	57.7	3,708	19.1	2,708	73.0	4,978	30.9	3,711	74.6
IV. Other Commonwealth												
Australia, Canada, New Zealand	194		114		251		149		260		100	
All other Commonwealth	213		120		222		145		92		30	
	407	2.2	234	57.5	473	2.4	294	62.2	352	2.2	130	36.9
Total Commonwealth	12,469	67.3	4,877	39.1	15,282	78.7	7,986	52.3	11,934	74.1	6,591	55.2
Foreign												
Philippines	9		3		192		146		1,046		665	
Other foreign	667		604		1,230		431		973		218	
Total foreign	1,676	9.1	607	36.2	1,422	7.3	577	40.6	2,019	12.5	883	43.7
Republic of Ireland	4,378	23.6	2,859	65.3	2,705	13.9	1,715	63.4	2,155	13.4	1,468	68.1
GRAND TOTAL	18,523	100.0	8,343	45.0	19,409	100.0	10,278	52.6	16,108	100.0	8,942	55.5

Source: Dept. of Health and Social Security, Statistics and Research Division: Overseas-born student and pupil nurses and pupil midwives in training in National Health Service Hospitals in England and Wales, 31 December 1964, 1969, 1974

Annex B to
CMC(77)I/A 3

Educational Bonds and Related Agreements

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Governments that wish to secure the services of people trained at their expense (or at the expense of an aid agency or another government) usually rely upon a bonding agreement. All Commonwealth governments who replied to the Secretariat's circular used such agreements[1] in one form or another. Some supplement these undertakings, in the case of breach, by interceding with the governments of countries where students are studying to secure their return, by moral persuasion, or by refusing professional registration.[2] At least one Commonwealth government has established a statutory agency which offers loans to students. Clearly such a scheme cannot directly ensure that a student returns, or remains, to serve in his own country. Nonetheless there may be some value, by way of contrast, in outlining this alternative to bonding and it is dealt with at the end of this paper.

Bonding

2. There is a core to such agreements, irrespective of jurisdiction, namely an undertaking by the government (or an associated aid agency) to pay all or part of the tuition fees, transport costs, maintenance and incidental expenses of the student or trainee for an undertaking to serve within the country concerned for a stipulated period, usually in the government service but occasionally for parastatal or private employers. Where a government employee is assisted, the payment of salary in whole or in part is usually provided for.

3. The interest (and hopefully value) of a survey of these agreements lies in two areas: the *means of securing a bond* in the case of breach, and the *clauses included to cover contingencies* such as marriage and ill-health.

Securing the bond

4. The object of a bonding agreement from the viewpoint of a government is to secure the service of a person on the completion of his study or training. As the courts in common law jurisdictions will not force a person to carry out any duties undertaken in a contract of employment, a government must rely on the sanction of damages to persuade a student to fulfil his obligations. While there will normally be no difficulty in showing that the student has received some substantial benefit in return for his commitment, recovery on a bond will be made easier if the amounts disbursed are clearly and precisely itemised. For this reason a well-drafted bond will include a detailed recital of the kinds of expenses met by the government. In some instances a sum (usually referred to as "the headsum") will be specified, which will represent either a computation of the amounts actually to be expended or a lesser fixed amount. The care with which these provisions are drawn up reflects the difficulties encountered in enforcing bonds in the courts. Indeed in some countries, for example New Zealand, a bond is not enforceable unless the sum to be recovered is stipulated in the bonding agreement. Unless the headsum, or the damages claimed on breach, can clearly be related to sums actually spent, there is a possibility that the courts may regard a claim as an attempt to enforce a penalty. In Fiji, under an agreement used until 1971, no headsum was stipulated; the trainee was merely obliged to repay "sums incurred by the government". However it proved difficult to establish in court what had been spent in this

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1 The following governments supplied information: Antigua, Australia, The Bahamas, Bangladesh, Barbados, Botswana, Cyprus, Fiji, India, Jamaica, Kenya, Lesotho, Malawi, Malta, Mauritius, New Zealand, St. Christopher/Nevis/Anguilla, Singapore, Sri Lanka, Swaziland, Tonga, Western Samoa, Zambia.

2 In Fiji, until 1974, the graduates of the Fiji School of Medicine could not practise privately. They may now, after 6 years' practice in Fiji, apply to engage in private practice.

way, especially where payments had been made under an aid scheme administered by another government. In Tonga, however, the headsum has been deliberately omitted because it was felt that students were less likely to default if they could not be certain of the financial consequences.

5. An example of a detailed recital of sums to be expended is the following clause, taken from an agreement drawn up by the Government of Zambia:—

> "NOW THEREFORE in consideration of the undertaking by the student herein contained the government grants to the student financial assistance by making payments for the following purposes:
>
> (i) fees in connection with the course;
>
> (ii) transport by an approved route to the place where the course is being held and returning to the place of employment with the Government;
>
> (iii) maintenance allowance;
>
> (iv) dependant's allowance;
>
> (v) settling-in allowance;
>
> (vi) textbook allowance;
>
> (vii) caution money;
>
> (viii) excess baggage allowance on return to Zambia;
>
> (ix) additional allowance;
>
> (x) salary while attending the said course of studies, while travelling to the Institution at the commencement of the course and while returning at the end of the course to the place of employment with the Government".[3]

This clause is more detailed than most. Agreements with people who are other than government employees will not, of course, provide for the payment of salary. The same agreement goes on to stipulate that:—

> "The parties are hereto deemed to have mutually agreed upon the said payments as genuine pre-estimates of the losses sustainable by the Government in the events referred to and have stipulated for these payments as liquidated damages and not by way of penalty."

It should be noted that there is no provision on the agreement itself for actual sums expended to be entered. The practice common in other countries is for a further clause to state the sum which may be recovered as liquidated damages. Equivalent clauses in an agreement used by the Government of Malawi stipulate:—

> "AND WHEREAS the Government has agreed with the student to allot . . . . . such sums . . . . . as will, in the opinion of the Government, be reasonably necessary to enable the said student to attend, pursue and complete the said course and provide for his upkeep during the period thereof. AND he has further agreed with the Government that in the event of his breach of this agreement . . . . . he shall be bound for the payment to the Government of a sum of money as agreed liquidated damages for such breach, which sum to be calculated at K600 for every year or part of a year, of such required period of service remaining unfulfilled by him at the date of his said breach."

A combination of an explicit recital of the headings under which expenses have been incurred and the inclusion of a headsum would seem advisable. Clauses framed in this manner should make it evident that the liquidated damages are fairly and properly calculated.

Sureties

6. Almost all bonds provide for one or two sureties who will be liable if the students breach the agreement. Some governments have indicated that the requirement for sureties might be a barrier to some students receiving grants. In St. Christopher/Nevis/Anguilla, for example, bonds may be as high as $30,000 and sureties can accordingly be hard to come by. Bonds, it is evident, must be calculated not only in a way clearly related to the cost of training, but at the same time neither unrealistically high so as to frighten off sureties, nor so low as to encourage those so disposed to flout them. In most countries, parents act as sureties. In Tonga, for example, the bond is very

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3 This agreement is set out in full in Appendix A. It is to be noted that no reliance in this instance is placed on sureties. An example of a shorter agreement, using sureties, is the Barbados Study Leave Bond which appears in Appendix B.

low but parental pressure is usually sufficient to secure its observance, especially as parents are conscious of the opportunities for their other children. Factors such as those are obviously more significant than any form of drafting.

7. Swaziland has recently enacted legislation which makes the obligation to take up Civil Service employment an *implied term* in any study loan or scholarship agreement. The purpose of this statutory provision would seem to be administrative convenience. It presupposes an agreement has been made and that any breach will be pursued in the courts in the ordinary manner. The Study Loan and Scholarship Agreement Order 1977 provides that:—

> "3. Notwithstanding the express terms and conditions of any agreement, the following terms and conditions shall be deemed to form part of such agreement, whether or not such agreement has been entered into prior to or after the commencement of this Order, namely:—
>
> (a) Any person to whom a grant or loan, as the case may be, has been made under the agreement shall be obliged on completion of the study course in respect of which such grant or loan has been made to return to Swaziland and undertake such employment in the Civil Service for not less than 5 years after the completion of such course . . . . .
>
> (b) In the event of any person not undertaking the employment allotted to him by the Minister as provided for in paragraph (a) or in the event of his not completing his study course or in the event of his leaving the employment allotted to him without the written consent of the Minister, such person shall be obliged to repay the full amount of such grant or loan, as the case may be, within such period of time as the Minister may determine together with such interest thereon as the Minister may . . . . . determine."

The Order also provides that the Government cannot contract out of this provision.[4]

Waiver or remission

8. All agreements require the bonded student or trainee to enter government service on the completion of his studies. The clauses outlining this and indicating when the agreement is deemed to have been breached are straightforward. There is however some variation of practice in regard to remission and waiver. Almost all governments either incorporate into an agreement, or provide in a schedule, for a reduction in the amount to be repaid, commensurate with the period already served. The bond period almost always reflects the length of study or training or its cost to the government, and any scheduled remission will vary accordingly. An example of a remission is that used by the Botswana Government:—

> "2. If the candidate resigns or is dismissed from service of the Government within 12 months after completion of the course, he/she shall repay to the Government the sum of R . . . . . being the total cost of the training period.
>
> 3. If the candidate resigns or is dismissed after 12 months following the completion of the course he/she shall be liable to repay to the Government an amount equivalent to a proportion of R . . . . . calculated on the number of months due to be served by the candidate at the time of his resignation or dismissal.
>
> 4. The candidate agrees that the Government shall be entitled on termination of the candidate's service within 3 years from the conclusion of the course to appropriate any monies due by Government to the candidate, including salary, towards payment of the sum mentioned at sub-paragraph (2) or (3) whichever is applicable."

Some governments, for example Western Samoa, only stipulate a maximum period of service and reserve the right to remit or refuse to remit, at their discretion, any part of the bonded period. The most common grounds for waiver as opposed to remission are either the unsuitability of a student for the course in question or medically established disability.

Conditions

9. The terms on which governments agree to assist students or their employees tend to be similarly phrased. The student normally undertakes to apply himself to his studies and to observe the regulations of the institution in which he is enrolled. If the scholarship is for overseas study, he agrees to return as soon as his studies are completed and work for the specified period or pay a

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4 The Order-in-Council is set out in full in Appendix C

sum (specified or otherwise) in lieu of service. Some agreements are, however, more detailed than others and include clauses which obviously reflect the experience of the authorities concerned. Some governments include clauses which state that they are not obliged to employ students at the conclusion of their studies. Clause 10 in the grant document used by the Government of Zambia states:—

> "Nothing contained in this agreement shall be construed as imposing any liability on the Government . . . . . to provide the student with employment, or in the event of the Government seeing fit to provide the student with employment, to continue to employ the student for any particular period or in any particular capacity."

Others specifically provide that the student must accept any position offered, at a salary within the government's discretion. The Western Samoan grant agreement provides:—

> "The student will . . . . . offer himself for employment in the Western Samoa Public Service at such reasonable salary or wage as the Public Service Commission of Western Samoa considers to be commensurate with his ability and otherwise as the Commission may direct."

In Tonga, however, the Government guarantees employment at a salary equal to that earned by others with similar qualifications.

10. In Botswana, students on post-secondary bursaries undertake that if they are appointed to the Public Service (and the government is under no obligation to make such appointments) they will make contributions from their salaries to the government for a period equivalent to that spent studying under the bursary. This undertaking is in addition to an agreement to repay the whole cost of the bursary (less contributions) if the bond is broken. The same agreement envisages the student being permitted to work for a private or parastatal employer:—

> "On application by the student the Government in its entire discretion . . . . . may agree that a student be employed in any parastatal or private organisation or be self-employed in Botswana subject to such terms and conditions as the Government may determine. Such consent shall not be taken as relieving the student of his obligations in terms of the other provisions of this agreement."

Indeed:

> "Where the student after the completion of his course of study obtains employment with a parastatal or private organisation, then the student agrees to sign a stop order on his employer for the monthly payment of such contribution from his salary. The amount of such contributions shall be determined by agreement between the student and the Government and shall be estimated on the basis of what the student would be likely to have earned if he had been employed by the Government."

In addition to these provisions, contingencies such as marriage and ill-health are covered in many agreements.

Loans

11. Of the governments concerned, two, Jamaica and Barbados, provided information of assistance given to students by use of loans. Jamaica advances loans to students to whom training awards have been granted. The student undertakes to serve the Jamaica Government for a specified period and in return is lent the cost of his training. Repayment may be waived in whole or in part depending on the length of time the student spends in the government service after qualification. The practical effect of this, from the student's viewpoint, is the same as if he had entered into a bond. As long as the sum lent is the actual cost of the course no problems should arise in suing for the full amount if the student fails to take up employment with the government or a lesser sum if the student has served part of the period he has committed himself to. Such undertakings avoid the difficulty of proving what has been expended; a sum sufficient to cover costs (and in the case of a government officer, salary) is advanced and this, or a lesser sum is what is claimed in the case of breach.

12. The system in operation in Barbados provides for the granting of loans by a statutory body on terms akin to those stipulated by financial institutions. A loan fund is set up under the Student Revolving Loan Fund Act 1976,[5] to which contributions are made by way of grants

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5 Appendix D

from the Government of Barbados, loans from banks and repayments. Those eligible are students studying at the University of the West Indies or any other approved institution. Repayments may be required over a period of eighteen years, commencing one year after the completion of the student's studies. Special provisions are made for recovery of sums owed by an action before a magistrate, even where the amount sued for exceeds his jurisdication. This presumably provides an efficient and cheap means of recovering sums owed.

13. Barbados also makes loans to people undergoing training from a Training Fund set up under the Training Act 1972–75.[6] These loans may subsequently be converted into grants if the trainee has completed a course of immediate value to the Public Service.[7] It would appear that grants from this fund are normally made to people already in the Public Service. Parallel to these means of assisting education are a number of bonding arrangements.

Conclusion

14. If any general comment can be made on the experience of the governments which replied to the Secretariat's circular it is this: informal encouragment or pressure has been of more use in securing and retaining the services of graduates and trainees than have legal agreements. A case in point is Sri Lanka which has had since 1961 an Act providing for the compulsory public service of graduates.[8] Even such a statutory obligation to serve would appear not to have been wholly successful. A Cabinet Committee investigating the continuing problem of professionally qualified people leaving Sri Lanka has recommended a policy in which incentives seem to play a greater part than compulsion.[9] Bonding and similar arrangements can only provide a legal framework for more positive measures.

October 1977

6 Appendex E

7 The agreement used is set out in Appendix F

8 Compulsory Public Service Act, No. 70 of 1961, Appendix G

9 "Report of the Cabinet Committee inquiring into the problem of technologically, professionally and academically qualified personnel leaving Sri Lanka". Sessional Paper No. X–1974.

APPENDIX A

GOVERNMENT OF THE REPUBLIC OF ZAMBIA

GOVERNMENT GRANT TO STUDENT

An Agreement made and entered into by and between .....
in his capacity as Secretary, Bursaries Committee Director of Civil Service Training for and on behalf of THE GOVERNMENT OF THE REPUBLIC OF ZAMBIA (hereinafter called 'the Government') of the first part; and

.....
(hereinafter called 'the student') of the second part:

WHEREAS the student wishes to pursue a course of studies at .....

(hereinafter called 'the Institution') for the purpose of acquiring the qualification of .....

.....

AND WHEREAS the student has applied to the Government for financial assistance to enable him/her to attend the Institution for that purpose:

AND WHEREAS the Government has agreed to grant the student financial assistance:

1. NOW THEREFORE in consideration of the undertaking by the student herein contained the Government grants to the student financial assistance by making payments for the following purposes*:

(i) fees in connection with the course;
(ii) transport by an approved route to the place where the course is being held and returning to the place of employment with the Government;
(iii) maintenance allowance;
(iv) dependant's allowance;
(v) settling-in allowance;
(vi) textbook allowance;
(vii) caution money;
(viii) excess baggage allowance on return to Zambia;
(ix) additional allowance;
(x) salary while attending the said course of studies, while travelling to the Institution at the commencement of the course and while returning at the end of the course to the place of employment with the Government.

2. For the purpose of the payment of fees and charges payable to the Institution the Government shall, in its absolute discretion, have the right to pay the grant or any portion of the grant direct to the student or to the Institution or to such other establishment or person as the Government may deem fit.

3. In consideration of the financial assistance to be afforded by the Government, the student undertakes—

(a) to attend the Institution for a period of ..... in a boarding establishment attached to the Institution or such other house or hostel as may be approved by the Government;

(b) not to change his/her course of studies without the consent of the Government;

(c) to exercise due diligence in his/her course of studies during the whole of the period specified in paragraph (a) of this clause and to exercise his/her best endeavours to pass within that period the final examination at the Institution entitling him/her to the award of a degree, diploma or certificate, as the case may be, in respect of the profession or vocation for which the course of studies was undertaken (hereinafter called 'the qualifying examination');

(d) upon completion of his/her course of studies at the Institution to serve in or continue his/her service in a department of the Government or to enter such employment as the Government may direct by notice in writing and to remain in it for a continuous period of at least twenty-four months commencing not later than six months after the writing of the qualifying examination, if called upon to do so during that period, and on such terms and conditions of service as may from time to time be laid down.

4. The Government may cancel, alter or recover the whole or any part of the grant—

(a) if the student fails or neglects to complete his/her course of studies at the Institution or fails to pass in any year whilst attending the Institution any examination incidental to his/her course of studies or fails to pass the qualifying examination;

(b) if unsatisfactory reports are made by the authority of the Institution concerning the student's conduct or progress;

(c) if the student fails to comply with the undertakings specified in paragraphs (a), (b) and (c) of clause 3;

(d) at the request of the student;

(e) for any other reason which Government in its absolute discretion may consider good and sufficient.

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*Delete those which do not apply to the student

5. If–

(a) the grant to the student is cancelled, altered or recoverable by the Government as in clause 4 provided; or

(b) the student fails to enter or return to the service of the Government as in paragraph (d) of clause 3 provided; or

(c) within the period specified in paragraph (d) of clause 3 the student resigns or is dismissed from the service of the Government on grounds of misconduct or inefficiency;

all the amounts paid to or on behalf of the student in terms of this agreement or such proportion thereof as the Government may direct shall become immediately repayable on demand by the student who is deemed to have accepted the calculation of the moneys recoverable or repayable as genuine pre-estimates of the damages to which the Government is entitled in the event of the breach of this agreement leading to the right in the Government so to demand recovery, repayment, cancellation or alteration of the grant or any part thereof.

6. If–

(a) the grant to the student is not cancelled, altered or recoverable by the Government as in clause 4 provided; and

(b) the student enters the service of the Government as in paragraph (d) of clause 3 provided and does not resign and is not dismissed within the period specified in paragraph (d) of clause 3, or is not called upon to serve the Government as in paragraph (d) of clause 3 provided;

the student shall be relieved of all liability and obligation to repay the grant.

7. The Government may defer the repayment of any amount due from the student in terms of this agreement for such period or periods as it may deem necessary, and the granting of further time for repayment or of any other relief or indulgence by the Government shall not be construed as a waiver of its rights to enforce the provisions of this agreement.

8. All Zambian students to be considered for or are in receipt of Government scholarships, bursaries or grants who, at the time of taking up their respective courses of study, were not married but subsequently get married during the course of their studies will not receive any additional financial assistance from the Government based on that account alone.

9. All serving officers nominated by Government to attend residential training courses where board and accommodation are provided at Government expense will be required to contribute towards the cost of board and lodging in accordance with Establishment Circular No. B13 of 1969 or as amended by Government from time to time. Those serving officers who are nominated by Government to attend training courses abroad will contribute towards board and accommodation in accordance with the provisions of General Order No. 126 (b) (i) or as directed by Government in cases where the Permanent Secretary (Personnel) is satisfied that the provisions of General Order No. 126 (b) (i) would not be applied appropriately; provided always that the rates of contribution will be based on the understanding that 60 per cent of the monthly net salary of married officers is set aside for the maintenance of the officer's family and dependants for the duration of the officer's attendance on the course.

10. Nothing contained in this agreement shall be construed as imposing any liability on the Government to settle any debts incurred by the student or to provide the student with employment or, in the event of the Government seeing fit to provide the student with employment, to continue to employ the student for any particular period or in any particular capacity.

11. The parties hereto are hereby deemed to have mutually agreed upon the said payments as genuine pre-estimates of the losses sustainable by the Government in the events referred to and to have stipulated for these payments as liquidated damages and not by way of penalty.

IN WITNESS WHEREOF the parties have set their hands on the dates shown:

As Witness: *for the Government of the Republic of Zambia:*

1. ..... at

in

2. ..... this ..... day of ....., 19...

As Witness: *by the student,*

1. ..... at

in

2. ..... this ..... day of ....., 19...

FIVE COPIES TO BE COMPLETED

Distribution: ORIGINAL to the student.

COPIES: Secretary, Bursaries Committee
Permanent Secretary
Head of Department
Permanent Secretary (Personnel)
} On appointment to the Civil Service

APPENDIX B

STUDY LEAVE BOND

BARBADOS

BY THIS BOND WE ..... of .....
..... in the parish of .....
and Island of Barbados, (hereinafter sometimes called "the Public Officer") .....
of .....in the parish of .....
and Island aforesaid, and ..... of .....
in the parish of ..... and Island aforesaid, (together hereinafter referred to as "the obligors") acknowledge ourselves jointly and severally bound to THE CROWN in the sum of.....
..... dollars to be paid by us or some or one of us to The Crown:

SEALED with our seals this ..... day of .....
One thousand nine hundred and .....

WHEREAS the Public Officer is employed in the Public Service of Barbados and has been granted study leave to pursue a course .....
for a period of .....on the conditions and stipulations hereinmentioned:

AND WHEREAS the expenditure by The Crown for salary other than that payable during vacation leave, the contingencies paid to or on behalf of the Public Officer during the said study leave is estimated to amount to the sum of ..... dollars.

AND WHEREAS as a condition of the award of the said study leave, it was agreed to between the Public Officer and The Crown that the Public Officer will upon the expiration of the said study leave immediately return to Barbados and re-enter and remain in the Public Service of Barbados for a period of .....
consecutive ..... from the date of his return to Barbados, provided however that:—

(a) If the Public Officer does not re-enter the Public Service of Barbados at the end of the said study leave, or shall have re-entered the said Service but, by reason of dismissal, resignation or retirement, shall have ceased to be employed in the said Service before serving for the minimum period set out in Column I to the Schedule hereto, he will immediately repay to The Crown the sum of .....
..... dollars, or

(b) If the Public Officer shall have re-entered the Public Service at the end of the said study leave, but by reason of dismissal, resignation or retirement, shall have ceased to be employed in the said Service before completing ..... consecutive..... service, The Crown shall, if the Public Officer has served for any of the periods set out in Column I of the Schedule hereto, waive payment of the amount calculated in accordance with Column II of the said Schedule in respect of the actual period served and the Public Officer shall immediately repay to The Crown the balance remaining due from the said sum of.....dollars after such waiver.

AND WHEREAS before and as one of the terms upon which the said study leave was granted the Public Officer was required to obtain two sureties for the performance of the obligations hereunder and it was agreed between the parties that ..... and .....
as sureties for the Public Officer shall enter into the above written bond conditioned as herein mentioned.

NOW THE ABOVE WRITTEN BOND is conditioned to be void:—

1. In case the Public Officer shall well and faithfully observe and perform all the abovementioned conditions and stipulations on his part undertaken to be observed and performed as aforesaid.

2. In case the Public Officer shall have failed to re-enter the Public Service and serve for the minimum period set out in Column I to the Schedule hereto and the Public Officer and the obligors or any or one of them or their or his personal representatives or any person acting for and on behalf of them or any or one of them shall pay to The Crown the sum of .....dollars.

3. In case the Public Officer shall have re-entered the Service, but shall have ceased to be employed in the Public Service before completing .....consecutive..... service, but shall have served for any of the periods set out in Column I to the Schedule hereto and the Public Officer and the obligors or any or one of them or their or his personal representatives or any person acting for and on behalf of them or any or one of them shall pay to The Crown the balance due to the said sum of .....
dollars after deducting therefrom the amount waived by The Crown in accordance with Column II to the said Schedule in respect of the actual period served by the Public Officer.

4. In case the said sum of .....dollars shall become payable on demand in any circumstances and shall be fully paid and satisfied.

Otherwise this Bond and the obligations of the Public Officer and the obligors and everyone of them hereunder shall remain in force.

THE SCHEDULE ABOVE REFERRED TO

COLUMN I *Period Served*	COLUMN II *Amount to be waived by Crown*

SIGNED SEALED AND DELIVERED by the said .....
in the presence of:— .....
.....

SIGNED SEALED AND DELIVERED by the said .....
in the presence of:— .....
.....

SIGNED SEALED AND DELIVERED by the said .....
in the presence of:— .....
.....

APPENDIX C

THE STUDY LOAN AND SCHOLARSHIP AGREEMENT ORDER

Date of Commencement: 4th March, 1977

Date of Assent: 24th February, 1977

A King's Order-in-Council to provide for the inclusion of certain terms in loan and scholarship agreements.

Short title

1. This King's Order-in-Council may be cited as The Study Loan and Scholarship Agreement Order, 1977.

Interpretation

2. In this Order unless the context otherwise requires–
"Agreement" means a scholarship agreement or study loan agreement;
"Civil Service" includes service in a statutory or parastatal body;
"Minister" means the Prime Minister or any person or board or authority appointed under any law or delegated by him to act on his behalf;
"scholarship agreement" means any agreement between the Government of Swaziland or on its behalf and any person (whether he is a minor or not) to whom in terms of such Agreement a grant is made for the purpose of enabling or assisting such person to study in any country or at any institution specified in such agreement or any other institution to which he has been transferred with the approval of the Minister;
"study loan agreement" means any agreement between the Government of Swaziland or on its behalf and any person (whether he is a minor or not) to whom in terms of such Agreement a certain sum of money is advanced by way of loan by or on behalf of the Government to such person for the purpose of enabling him or assiting him to study at any institution or in any country specified in such Agreement, or any other institution or country to which he has been transferred with the approval of the Minister.

Deemed terms of any Agreement

3. Notwithstanding the express terms and conditions of any Agreement, the following terms and conditions shall be deemed to form part of such Agreement, whether or not such Agreement has been entered into prior to or after the commencement of this Order, namely–

(a) any person to whom a grant or loan, as the case may be, has been made under the Agreement shall be obliged on completion of the study course in respect of which such grant or loan has been made to return to Swaziland and undertake such employment in the Civil Service of Swaziland as the Minister may allot to him and shall remain in the service of the Civil Service for not less than five years after the completion of such course;

Provided that the Minister may at any time in writing consent to such person taking up employment elsewhere than in the Civil Service;

And provided further that the Minister shall not be obliged to allot any post to a student unless having regard to such student's qualifications, there is a suitable vacancy for him in the Civil Service;

(b) In the event of any person not undertaking the employment allotted to him by the Minister as provided for in paragraph (a) or in the event of his not completing his study course or in the event of his leaving the employment allotted to him without the written consent of the Minister, such person shall be obliged to repay the full amount of such grant or loan, as the case may be, within such period of time as the Minister may determine together with such interest thereon as the Minister may, in consultation with the Minister for Finance and Economic Planning, determine (not being less than 6 per cent per annum or more than 12 per cent per annum) calculated from the date when such loan or gant, as case may be, was made.

Cannot contract out of the Agreement

4. Any provision in any Agreement whereby the Government contracts out of the provisions of section 3 shall be deemed invalid.

APPENDIX D

STUDENT REVOLVING LOAN FUND ACT, 1976 – 20

I assent,
W. R. DOUGLAS
Acting Governor-General
12th November, 1976.

1976 – 20

An Act to provide for the establishment and administration of a Student Revolving Loan Fund and for related matters.

(By Proclamation) Commencement.

ENACTED by the Parliament of Barbados as follows–

1. This Act may be cited as the Student Revolving Loan Fund Act, 1976. Short title.

2. For the purposes of this Act– Interpretation.

"Bank" means the bank designated by the Minister under section 5(1);
"Committee" means the Student Revolving Loan Fund Management Committee established by section 4;
"Fund" means the Student Revolving Loan Fund established by section 3;
"Minister" means the Minister responsible for Education;
"student" means a person who is enrolled or has been accepted for enrolment, in a prescribed course of study at any university;
"University" means the University of the West Indies or any other institution for higher learning approved by the Minister.

3. There is hereby established a fund to be known as the Student Revolving Loan Fund consisting of – Establishment of Fund.

(a) moneys raised for the purpose by means of loans made by the Inter-American Development Bank to the Government of Barbados under an agreement;

(b) moneys resulting from –
(i) repayments made to the Fund in respect of sums previously advanced therefrom,
(ii) sums becoming due to the Fund as a result of loans previously advanced therefrom, and
(iii) interest accruing in respect of loans advanced out of the Fund;

(c) moneys borrowed by the Committee for the purposes of the Fund;

(d) income earned from investments made by the Committee pursuant to section 6(b);

(e) any sum of money in any manner becoming payable to or vested in the Fund; and

(f) moneys voted by Parliament for the purposes of the Fund.

4. (1) There is hereby established a Committee to be known as the Student Revolving Loan Fund Management Committee and the Schedule has effect with respect to the constitution of the Committee and otherwise in relation thereto. Establishment of Committee. Schedule.

(2) The Committee shall be a body corporate and section 21 of the Interpretation Act applies thereto. Cap. 1

5. (1) The Minister responsible for Finance shall, by notice published in the *Official Gazette*, designate a bank to be the financial agent of the Fund. Financial agent and depository.

(2) The Committee shall, after consultation with the Minister responsible for Finance and the Inter-American Development Bank, appoint the Central Bank of Barbados, or any other bank in Barbados into which public funds may lawfully be deposited, to be the depository for the Fund.

6. The Committee may, subject to the directions of the Minister – Functions of Committee.

(a) provide, through its financial agent, loans to students on such terms and conditions as the Committee determines;

(b) receive, disburse, invest through its financial agent and account for such sums are paid into the Fund; and

(c) do all such things as are necessary or expedient for the administration and management of the Fund.

Loans subject to interest.

7. Loans advanced pursuant to section 6(a) are subject to the payment thereon of interest at a rate not exceeding the current rate of interest.

Exemption from income tax.

8. Notwithstanding any enactment to the contrary, the Committee is exempt from the payment of any form of tax.

Accounts, audit and report.

9. (1) The Committee shall keep proper accounts of its transactions and such accounts shall be audited annually by an auditor appointed by the Committee with the approval of the Minister.

(2) The Auditor General shall, at the request of the Minister, carry out –

(a) an investigation into the accounts of the Committee; or

(b) a special audit of such accounts.

(3) The Committee shall, on or before the 31st July, in each year, cause to be prepared a report containing –

(a) an account of all transactions relating to the Fund throughout the preceding year; and

(b) a statement of accounts relating to the Fund audited by the Auditor General or by an auditor appointed by the Minister after consultation with the Committee.

Minutes of Committee to be evidence.

10. A copy of the minutes of any meeting of the Committee, purported to be signed by the Chairman or Deputy Chairman, is evidence in all legal proceedings that –

(a) the meeting in respect of which those minutes were taken was duly convened;

(b) the signature affixed to such minutes is the true signature of the Chairman or the Deputy Chairman, as the case may be; and

(c) the facts contained in such minutes are a correct record of what transpired at the meeting.

Offences.

11. (1) Any person who, by any false representation causes, induces or attempts to induce the Committee to grant a loan to him or to any other person is guilty of an offence and liable on summary conviction to a fine not exceeding $500 or to imprisonment for a term not exceeding 6 months or both.

(2) Nothing prevents the Committee from recovering, in the manner set out in section 16, a loan made to a person convicted under subsection (1).

Repayment of loans to Committee.

12. (1) Repayment to the Committee of loans obtained under this Act shall be commenced not later than 1 year after the date of the termination of the approved course of study but repayment of the entire loan shall be completed not later than 18 years after that date.

(2) The Committee shall fix the minimum monthly, quarterly or half-yearly instalments for the repayment of loans.

Borrowing powers.

13. The Committee may, subject to the approval of the Minister responsible for Finance, borrow such sums of money as it requires to meet its obligations and carry out its functions under this Act.

Guarantee of borrowings by Minister with approval of Parliament.

14. (1) The Minister responsible for Finance may, with the approval of Parliament, guarantee in such manner and on such terms and conditions as he thinks fit the payment of the principal and interest of any authorised borrowings of the Committee.

(2) Where the Minister responsible for Finance is satisfied that there has been default in the repayment of any amount guaranteed under subsection (1) he shall direct the repayment of that amount out of the Consolidated Fund and it shall be a charge on that Fund.

Repayment of and interest on amounts paid in fulfilment of guarantee.

15. The Committee shall make to the Accountant General, at such times and in such manner as the Minister responsible for Finance directs, payments of such amounts as are directed in or towards repayment of any authorised borrowings by the Committee in fulfilment of any guarantee given under section 14 and payment of interest on outstanding amounts in respect of such borrowings at a rate of interest not exceeding the current rate of interest.

Recovery of loans.

16. Where –

(a) the repayment of loan does not commence within the period specified in section 12(1); or

(b) an instalment is overdue by 3 or more months,

the Committee may recover that loan in civil proceedings before a magistrate for District 'A' notwithstanding that the amount of the loan exceeds the normal monetary limit of the jurisdiction of a magistrate.

Minister responsible for Finance to reimburse Committee.

17 The Minister responsible for Finance may, with the approval of Parliament and within 30 days or as soon as practicable thereafter of the receipt of a written request addressed to him by the Committee, cause to be paid into the Fund out of moneys voted by Parliament for the purpose –

(a) all amounts overdue by 180 days or more from the date on which such amounts become due and payable;

(b) all amounts necessary to compensate for losses incurred by fluctuations in the rate of exchange.

Reserve account.

18. Where any profit or gain accrues to the Fund as a result of money paid under section 17(b) the Committee shall cause the amount of that profit or gain to be paid into a reserve account.

Committee to pay sum recovered to Accountant-General.

19. (1) Where the Minister responsible for Finance pays a sum of money to the Committee under section 17(a) and such sum is subsequently recovered in any legal proceedings brought by the Committee pursuant to section 16 or is paid voluntarily to the Committee, the Committee shall cause such sum to be paid to the Accountant General.

(2) Where the Committee fails to comply with subsection (1) or section 15 the Minister may recover the amount as a debt due to the Crown in civil proceedings before a magistrate for District 'A' notwithstanding that the amount exceeds the normal monetary limit of the jurisdiction of a magistrate.

Regulations.

20. The Committee may, with the approval of the Minister, make regulations –

(a) respecting the administration, management and investment of the resources of the Fund;

(b) requiring students to whom loans are made under this Act to furnish such information as the Committee requires;

(c) prescribing the rate of interest that may be charged on loans made from the Fund;

(d) prescribing the terms and conditions on which loans may be granted;

(e) prescribing the procedures to be followed by an applicant for a loan;

(f) prescribing the courses of study in respect of which loans may be made under this Act;

(g) designating Universities at which any of the prescribed courses of study may be pursued;

(h) prescribing anything that is by this Act authorised or required to be prescribed; and

(i) generally for the proper carrying into effect of this Act.

Commencement.

21. This Act shall come into operation on such day as the Governor-General may appoint by proclamation.

SCHEDULE

(Section 4)

Constitution of Student Revolving Loan Fund Management Committee

Constitution of Committee.

1. (1) The members of the Committee shall be appointed by the Minister by instrument in writing and shall consist of –

(a) the Permanent Secretary, Ministry of Education who shall be the Chairman;

(b) the Chief Education Officer who shall be the Deputy Chairman;

(c) a representative of the Ministry of Finance and Planning nominated by the Director of Finance and Planning;

(d) a representative of the Cave Hill Campus of the University of the West Indies nominated by the Pro-Vice Chancellor of that Campus; and

(e) a representative of the Barbados Institute of Management and Productivity.

(2) The Minister may –

(a) in respect of each member of the Committee except the Chairman, appoint a person to act in the absence or inability of that member;

(b) where he thinks it necessary or expedient so to do, increase the membership of the Committee.

Disqualification for membership of Committee and employment under Committee.

2. (1) A person who is employed by the Committee is not qualified to be a member of the Committee.

(2) No member of the Committee may be appointed to any office or employment under the Committee.

(3) No person is, within one year from the date on which he last held or acted in the office of member of the Committee, eligible for appointment to any office or employment under the Committee.

Duration of membership.

3. (1) Every member of the Committee shall hold office for such period, not exceeding 3 years, as the Minister determines and is eligible for re-appointment.

(2) The Chairman may at any time resign his office by instrument in writing addressed to the Minister and his resignation shall take effect as from the date of receipt of the instrument by the Minister.

(3) A member of the Committee other than the Chairman may, at any time resign his office by instrument in writing addressed to the Minister and transmitted through the Chairman and from the date of receipt by the Chairman of such instrument such member shall cease to be a member of the Committee.

Meetings.

4. (1) The Committee shall meet at such times as are necessary or expedient for the transaction of its business and such meetings shall be held at such places and times and on such days as the Committee determines.

(2) The Chairman may, at any time, summon a meeting of the Committee and shall summon a meeting within 7 days –

(a) of a request for that purpose addressed to him by at least 3 members of the Committee; or

(b) of a direction to that effect addressed to him by the Minister.

(3) The Chairman or in his absence the Deputy Chairman of the Committee shall preside at meetings of the Committee.

(4) At any meeting of the Committee, in the absence or inability to act of both the Chairman and Deputy Chairman, the members of the Committee present shall elect one of their members to preside at that meeting.

Quorum.

5. The quorum of the Committee at any meeting is 3.

Decisions.

6. The decisions of the Committee shall be by a majority of the votes of the members present and constituting a quorum but where, in any case, the voting is equal the Chairman, Deputy Chairman or other person presiding at the meeting shall, in addition to an original vote, have a second or casting vote.

Minutes.

7. (1) Minutes in proper form of each meeting of the Committee shall be kept by the Secretary or such person as the Committee appoints for the purpose and shall be confirmed by the Chairman or Deputy Chairman, as the case may be, as soon as practicable thereafter at a subsequent meeting.

(2) A copy of the minutes of each meeting as recorded by the Secretary of such other person as is referred to in sub-paragraph (1) shall be submitted to the Minister within 21 days of the meeting.

Leave of absence.

8. The Minister may grant leave of absence to the Chairman or any other member of the Committee.

Authentication of seal and documents.

9. (1) The seal of the Committee shall be authenticated by the signature of the Chairman or Deputy Chairman.

(2) All documents, other than those required by law to be under seal, made by, and all decisions of, the Committee may be signified under the hand of the Chairman, Deputy Chairman or any member of the Committee authorised to act in that behalf.

Sub-committees.

10. (1) The Committee may appoint sub-committees to examine and report on any matter arising out of or connected with any of the functions of the Committee.

(2) The number of members of a sub-committee, appointed under this paragraph shall be fixed by the Committee.

(3) The Committee may reject the report of a sub-committee or adopt such report wholly or subject to such modifications the Committee thinks fit.

Notification of membership.

12. The membership of the Committee as at first constituted and any changes therein shall be notified in the *Official Gazette*.

APPENDIX E

TRAINING ACT, 1972 – 25

I Assent
A. WINSTON SCOTT
Governor-General
8th November 1972

1972 – 25

An Act to make new provision for the improvement and efficiency of the public services of Barbados by means of training and for connected purposes.

Commencement (By Proclamation)

ENACTED by the Parliament of Barbados as follows:–

Short title. 1. This Act may be cited as the Training Act, 1972.

Interpretation. 2. For the purposes of this Act –

"Fund" means the Training Fund established by section 3(1):
"Loan Fund" means the Training Loan Fund established by section 4(1):
"Minister" means the Minister responsible for training:
"Officer of a statutory board" means a person holding a pensionable office within the meaning of section 2(1) of the Statutory Boards (Pensions) Act, 1969:
Act 1969–32
"public employee" has the meaning assigned to it by section 2(1) of the Public Employees Pensions Act, 1961:
Act 1961–47.
"teacher" has the meaning assigned to it by section 2 of the Teachers (Secondary Schools) Pension Act, 1962, and includes any other person to whom that Act applies.
"Training Scheme Fund" means the Training Scheme Fund established by the Training Scheme Fund Act, 1953.
Act 1953–6

Training Fund. 3. (1) There is established under the control and management of the Minister a Training Fund into which shall be paid –

(a) all moneys which at the commencement of this Act stand to the credit of the Training Scheme Fund;

(b) all moneys which represent the repayment after the commencement of this Act of a loan including interest thereon repaid by any person to whom a loan was made out of the Training Scheme Fund or the proceeds of the forfeiture after such commencement of a bond securing any award made out of that Fund; and

(c) all moneys provided by Parliament for payment into the Fund.

(2) The Minister may, subject to such terms and conditions as may be prescribed, award free scholarships and training courses out of the Fund to –

(a) public officers;

(b) public employees;

(c) teachers;

(d) officers of statutory boards; or

(e) such other persons as the Minister determines.

Training Loan Fund. 4. (1) There is established under the control and management of the Minister a Training Loan Fund into which shall be paid –

(a) all moneys provided by Parliament for payment into the Loan Fund;

(b) all moneys which represent the repayment of a loan including interest thereon repaid by any person to whom a loan is made under sub-section (2).

(2) The Minister may, subject to such terms and conditions as may be prescribed, make loans from the Loan Fund to any person mentioned in paragraphs (a) to (e) of section 3(2) for the purpose of assisting that person to pursue a course of study or training course approved by the Minister.

(3) A loan made under subsection (2) shall not exceed $5,000 and shall bear interest at the prescribed rate.

Reports. 5. The Minister shall, not later than 4 months after the end of each financial year, cause to be laid before Parliament separate reports on the Fund and the Loan Fund showing –

(a) in the case of the Fund, the number of the awards made and in force the amount of each award;

(b) in the case of the Loan Fund, the number of loans made and the amount of each loan; and

(c) in each case, the state of that Fund.

Regulations.

6. The Minister may make regulations –

(a) prescribing anything that is by this Act required to be prescribed; and

(b) generally for carrying out the objects and purposes of this Act.

Repeal of Act 1953–6.

7. (1) Subject to subsection (2), the Training Scheme Fund Act, 1953 and all amendments thereto are replaced.

(2) An award made under section 4 of the Training Scheme Fund Act, 1953 and in force at the commencement of this Act shall, subject to the terms and conditions on which it was made, continue to have effect as if made under this Act.

Commencement.

8. This Act shall come into operation on such day as the Governor-General may appoint by proclamation.

APPENDIX F

CONVERSION OF LOAN INTO GRANT

BARBADOS

BY THIS BOND WE .....

of ..... in the parish of .....

and Island of Barbados, (hereinafter sometimes called "the Officer"), ...

..... of .....

..... in the parish of ..... and Island aforesaid and

..... of .....

..... in the parish of ..... and Island aforesaid, (together hereinafter referred to as "the obligors") acknowledge ourselves jointly and severally bound to THE CROWN in the sum of ..... dollars to be paid by us or some or one of us to the Crown:

SEALED with our seals this ..... day of .....

one thousand nine hundred and .....

WHEREAS the Officer was granted a loan from the Training Scheme Fund subject to certain terms and conditions which are more particularly set out in the bond to the Crown entered into by the Officer, ...

..... and ..... and dated the .....

day of ..... one thousand nine hundred and ..... as Security for the repayment of the said loan;

AND WHEREAS the Officer, having satisfied the terms and conditions in the said bond, has agreed with the Crown for the conversion of the said loan into a grant on the following terms and conditions, namely:—

(a) The Officer will remain in the Public Service of Barbados for a period of .....

consecutive ..... from the date hereof ..... (hereinafter sometimes called "the period of Bonded Service") provided however that if the Officer, by reason of dismissal, resignation or retirement, shall have ceased to be employed in the said Service before the expiration of the period of bonded service, he will immediately repay to The Crown the sum of .....

..... being the said loan advanced by The Crown together with interest thereon, or, if the Officer is entitled thereto, such reduced amount in accordance with the provisions of sub-paragraph (b) hereof;

(b) That the Officer shall be entitled to a reduction of the said sum of .....

.....

(i) by an amount equivalent to 10% of that part of his salary (including acting allowances) which exceeds the maximum of the salary scale, or any review thereof, of his present substantive post of .....

..... if he shall during the period of bonded service serve in a higher post than his present substantive post, and shall perform and observe his obligations hereunder, and

(ii) by each amount waived from time to time under Column II of the Schedule hereto in respect of the actual period served if the officer has served for any of the periods forming part of the period of bonded service set out in Column I of the said Schedule; and

(c) that the officer will obtain two Sureties for the performance of his obligations hereunder,

AND WHEREAS it was agreed between the parties that .....

..... and ..... as Sureties for the Officer shall enter into the above written bond conditioned as herein mentioned.

NOW THE ABOVE WRITTEN BOND is conditioned to be void:—

1. In case the Officer shall well and faithfully observe and perform all the above-mentioned conditions and stipulations on his part undertaken to be observed and performed as aforesaid PROVIDED ALWAYS and it is hereby declared that the rights of The Crown hereunder shall not be prejudiced or affected by any alteration which may be made by agreement between the Officer and The Crown in the terms of the said conversion of the loan into a grant or the obligations to be performed hereunder or by any other indulgence or forbearance towards the Officer in connection with the said conversion into a grant or the performance of the obligations hereunder which but for this provision might release the obligors from liability under this bond.

2. In case the Officer shall have ceased to be employed in the said Service before the expiration of the period of bonded service, and the Officer and the obligors or any one of them or their or his personal representatives or any person acting for and on behalf of them or any or one of them shall pay to The Crown the whole sum of .....

..... dollars or, if the officer is entitled thereto, such reduced amount in accordance with the provisions of sub-paragraph (b) above.

3. In case the said sum of ..... dollars or such reduced amount as aforesaid mentioned shall become payable on demand in any circumstances and shall be fully paid and satisfied.

Otherwise this Bond and the obligations of the Officer and the obligors and every one of them hereunder shall remain in force.

THE SCHEDULE ABOVE REFERRED TO

COLUMN I *Parts of Period of Bonded Service actually served*	COLUMN II *Amount to be waived by Crown*

SIGNED SEALED AND DELIVERED by the said .....
in the presence of:— .....
.....

SIGNED SEALED AND DELIVERED by the said .....
in the presence of:— .....
.....

SIGNED SEALED AND DELIVERED by the said .....
in the presence of:— .....
.....

APPENDIX G

Compulsory Public Service Act, No. 70 of 1961

AN ACT TO MAKE PROVISION FOR ENABLING THE CALLING UP FOR COMPULSORY PUBLIC SERVICE OF PERSONS WHO ARE GRADUATES OF THE UNIVERSITY OF CEYLON, OR OF ANY UNIVERSITY OUTSIDE CEYLON AND WHO UNDERGO A COURSE OF TECHNICAL TRAINING IN THE UNIVERSITY OF CEYLON OR ANY OTHER SUCH UNIVERSITY, AND FOR MATTERS CONNECTED THEREWITH OR INCIDENTAL THERETO.

[Date of Assent: 29th December, 1961]

BE it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Senate and the House of Representatives of Ceylon in this present Parliament assembled, and by the authority of the same, as follows:—

Short title.

1. This Act may be cited as the Compulsory Public Service Act, No. 70 of 1961.

Graduates to whom this Act applies.

2. The provisions of this Act shall apply to every person who, unless he is in employment or is a Member of Parliament or Senator, on or after the date of the commencement of this Act,—

(a) becomes a graduate of the University of Ceylon, or any other University established in Ceylon to which a grant is made by the Government; or

(b) becomes a graduate of any University outside Ceylon and thereafter undergoes a course of technical training provided by or in the University of Ceylon or any other University established in Ceylon; or

(c) being a medical graduate of the University of Ceylon, or any other University established in Ceylon, thereafter becomes a medical practitioner within the meaning of the Medical Ordinance.

Every such person is in this Act referred to as a "graduate to whom this Act applies".

Graduates to whom this Act applies subject to compulsory public service.

3. (1) Every graduate to whom this Act applies shall, as from the date on which he becomes such a graduate, be a person subject to compulsory public service.

(2) A graduate subject to compulsory public service shall, if he is not duly appointed to any appropriate office in the public service at any time before the expiry of the prescribed period after the date on which he became subject to such service, cease to be subject to such service. Different periods may be so prescribed in respect of different classes of graduates who are subject to compulsory public service.

Obligation imposed on graduates subject to compulsory public service to accept and continue employment in the public service.

4. (1) A graduate subject to compulsory public service who, while he is so subject, is duly appointed to any appropriate office in the public service shall be under an obligation —

(a) to accept that appointment;

(b) to commence to serve in that office on the date on which his appointment is due to take effect; and

(c) subject to the provisions of section 12 and subsection (3) of this section, to continue to serve in that office, or in any other subsequent appropriate office in the public service to which he may be duly transferred or appointed, until the date on which his appointment or subsequent appointment to the service is due to expire (not being a date later than a period of five years after the date on which such person became subject to such service), or until the date on which his appointment to such service is duly terminated, whichever date is earlier.

(2) A graduate on whom an obligation is imposed by sub-section (1) of this section to accept any appointment to any appropriate office in the public service, and to commence to serve in that office, shall, if such graduate is unable to discharge that obligation by reason of his having been declared to be medically unfit to do so after a duly conducted medical examination, be deemed to be exempted from the liability to discharge that obligation.

(3) A graduate who, while he is discharging the obligation imposed on him by sub-section (1) of this section to continue to serve in any appropriate office in the public service, is granted permission to pursue a course of technical education in any institution outside Ceylon for any period, shall be under an obligation at the end of that period to recommence service in that office, or any other appropriate office in such service to which he may be duly transferred, and to continue to serve in that office or such other office for that period, and accordingly the date on which his appointment to such service

is due to expire shall be reckoned by reference to the period on which it would have expired but for the period during which he pursued such course increased by the period during which he pursued such course.

(4) A graduate on whom an obligation is imposed by sub-section (1) of this section to continue to serve in any appropriate office in the public service shall, if he does not continue in that office for any period during which he is pursuing a course of technical education in any institution outside Ceylon with the prior permission of the person or authority entitled to grant such permission, be deemed to be exempted from the liability to discharge such obligation during that period. The preceding provisions of this sub-section shall not be deemed or construed to affect or prejudice the operation of the provisions of sub-section (3) of this section.

(5) Any graduate who fails to discharge the obligation imposed on him by sub-section (1) or sub-section (3) of this section shall, unless he is a graduate deemed to be exempted from the liability to discharge that obligation, be guilty of an offence under this Act and shall be liable to a fine not exceeding one hundred and fifty rupees for every day during which such failure continues.

Obligation imposed on the head of a Ceylon University to give information to the prescribed authority relating to persons who are subject to compulsory public service.

5. (1) The Head of the University of Ceylon, or any other prescribed University established in Ceylon to which a grant is made by the Government, shall be under an obligation to give the prescribed authority written notice of the fact that a person has become a graduate of that University within a period of fourteen days after the date on which such person became such a graduate.

(2) The Head of any University who fails to discharge the obligation imposed on him by sub-section (1) of this section shall be guilty of an offence under this Act and shall be liable to a fine not exceeding fifty rupees for every day during which such failure continues.

Obligation imposed on persons in regard to the employment of graduates subject to compulsory public service.

6. (1) Every person shall be under an obligation not to employ, or continue in his employment, any graduate on whom an obligation is imposed by sub-section (1) or sub-section (3) of section 4 for so long and so long only as such graduate has not discharged that obligation unless such graduate is deemed to be exempted from the discharge of that obligation under this Act:

Provided, however, that it shall be a defence for any person charged with the offence of having failed to discharge the obligation imposed on him by the preceding provisions of this section (in this Proviso referred to as "the accused") in relation to any graduate to prove that the accused had no reason to believe that such graduate had not discharged the obligation imposed on him by sub-section (1) or sub-section (3) of section 4 and that, as soon as the accused became aware that there was a failure on his part to discharge the obligation imposed on him by the preceding provisions of this section, the accused took immediate steps to discharge that obligation.

(2) Every person who fails to discharge the obligation imposed on him by sub-section (1) of this section shall be guilty of an offence under this Act and shall be liable to a fine not exceeding one hundred and fifty rupees for every day during which such failure continues.

(3) No suit or prosecution shall lie against any person for any act which in good faith is done or purported to be done by him in order to discharge the obligation imposed on him by sub-section (1) of this section.

Orders.

7. (1) The Minister may make Orders for or in respect of all matters required or authorised by this Act to be prescribed.

(2) Any Order made by the Minister shall be published in the *Gazette*, and shall come into force on the date of such publication, or on such later date as may be specified in the Order.

(3) Any Order made by the Minister shall, on its coming into force as provided in sub-section (2) of this section, be as valid and effectual as if it were herein enacted.

Offences under this act summarily triable.

8. All offences under this Act may be tried summarily by a Magistrate.

Powers of appointment, etc., of the Public Service Commission or the Judicial Service Commission not to be affected or curtailed by this Act.

9. Nothing in the provisions of this Act shall be deemed or construed to affect, prejudice, or curtail, in any way –

(a) the power of appointment, transfer, dismissal and disciplinary control of public officers vested in the Public Service Commission; or

(b) the power of appointment, transfer, dismissal and disciplinary control of judicial officers vested in the Judicial Service Commission,

by the Ceylon (Constitution) Order in Council, 1946.

Offences under this Act committed by a body of persons.

10. Where an offence under this Act is committed by a body of persons (other than a University), then, –

(a) if that body of persons is a body corporate, every director or officer of that body corporate, and

(b) if that body of persons is a firm, every partner of that firm,

shall be guilty of that offence:

Provided, however, that a director or officer of such body corporate or a partner of such firm shall not be deemed to be guilty of such offence if he proves that such offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

Interpretation.

11. (1) In this Act, unless the context otherwise requires –

"appropriate office", in relation to a graduate to whom this Act applies of any prescribed class or description, means any office of any such grade or class in the public service as may have been prescribed as being appropriate for the appointment of the category of graduates of that class or description;

"duly appointed", in relation to any appropriate office in the public service, means appointed to that office, under and in accordance with the provisions of any written law for the time being applicable to such appointment, by the person or authority empowered to make such appointment by or under that law;

"duly conducted medical examination", in relation to any appropriate office in the public service, means a medical examination conducted under and in accordance with the provisions for the time being applicable to members of the public service;

"duly terminated", in relation to any appropriate office in the public service, means the termination of service in that office, under and in accordance with the provisions of any written law for the time being applicable to such termination, but does not include resignation from that office without the prior approval of the person or authority empowered to terminate such service;

"duly transferred", in relation to any appropriate office in the public service, means a transfer to or from that office made or effected, under and in accordance with the provisions of any written law for the time being applicable to such transfer, by the person or authority empowered to do so by or under that law;

"graduate", in relation to any University, means a person on whom a degree or diploma has been conferred by that University, or who is or will be entitled to the conferment of such degree or diploma by reason of his having completed a successful course of training or study in that University;

"Head", in relation to any University, means the Vice-Chancellor for the time being of that University or, in the absence of a Vice-Chancellor, the person, by whatever name called, who for the time being occupies the position of Head of the management or administration of the affairs of that University;

"public service" means the service consisting of members who are the holders of paid offices as servants of the Crown in respect of the Government of the Island, but does not include the persons referred to in paragraphs (a), (b), (c), (d), (e), (f), (g), (h), (j) and (k) of the definition of the expression "public officer" occurring in Section 3 of the Ceylon (Constitution) Order in Council, 1946; and

"technical" means artistic, scientific, or professional.

(2) For the purposes of this Act –

(a) the appointment of a person to any appropriate office in the public service shall be deemed to be due to take effect on the date specified in the letter or other instrument by which such appointment is made, or on such later date to which it may have been postponed by the person or authority who made such appointment; and

(b) the appointment of a person to any appropriate office in the public service shall be deemed to be due to expire, if a date is specified in the letter or other instrument by which the appointment was made (not being a date expiring later than a period of five years from the date on which he became subject to compulsory public service), on that date or, if no date is so specified, at the end of such period of five years.

Modification of certain provisions of this Act in case of particular graduates.

12. The provisions of paragraph (c) of subsection (1) of section 4, and paragraph (b) of sub-section (2) of section 11, shall, in their application in the case of any graduate who is a person of the description referred to in paragraph (b) of section 2, have effect as if for the word "five" wherever it occurs in such provisions, there were substituted the word "three".

CMC (77) I/A4

REVIEW OF ACTION TAKEN FOLLOWING THE FOURTH COMMONWEALTH MEDICAL CONFERENCE

Maintenance of Medical Equipment

Paper prepared by the Commonwealth Secretariat

Concern was expressed at the Fourth Commonwealth Medical Conference about the difficulties experienced by many developing countries in maintaining and repairing medical equipment, particularly electrical equipment, and at the waste of resources resulting from expensive equipment lying idle for lack of maintenance and repair skills and spare parts. This was seen as a suitable area for Commonwealth co-operation and the Secretariat was requested to look into ways of improving the situation.

2. The Secretariat obtained the services of Dr. Clifford Riley, a British consultant pathologist/ bio-medical engineer, experienced in the design, manufacture and maintenance of electro-medical equipment, who was asked to examine present arrangements for maintenance and repair and to recommend ways in which improvements might be made. In particular, he was asked to assess the potential for training on a regional basis and to make recommendations as to how existing facilities might be supplemented.

3. Dr. Riley visited selected member countries in South-East Asia; West Africa; East, Central and Southern Africa; and the Caribbean. At the conclusion of his visit to each region he submitted reports containing his findings and recommendations which were sent to each country and regional agency concerned. An interim general report was submitted to the 1976 Pre-WHA Meeting in Geneva. Dr. Riley's final general report and recommendations is attached in Annex A. (Dr. Riley's regional reports have not been included since their findings and recommendations are covered in his general report.)

4. Initially it had been thought that an investigation in the Pacific region would not be necessary since, following a WHO survey in 1973, a WHO inter-country regional training project based in New Zealand was planned to begin in 1977. It was learned in 1976, however, that this project had been shelved due to shortage of UNDP funds. It was therefore decided that the Secretariat should commission an investigation in this region also, and that it should be treated as an operation separate from those of Dr. Riley, for reasons of distance, time and economy. Mr. Robert Sutherland, of the Australian Hospitals and Charities Commission, an experienced hospital engineer, was accordingly asked to undertake it. He was requested to take into account the WHO survey and to assess the potential for training, particularly in the developing countries of the South Pacific.

5. At the conclusion of his visits, Mr Sutherland submitted the report in Annex B attached, which has been sent to the countries concerned.

6. In the case of both Dr. Riley's and Mr. Sutherland's reports, sections containing recommendations affecting individual countries only have been sent to those countries but not to others.

Findings

7. The widespread need for improvement in the maintenance and repair of medical equipment, and particularly electrical equipment, which is underlined by both consultants, is accepted by Governments and most of the problems involved, although they may vary in degree, are common to most developing countries. As the reports indicate, a satisfactory medical engineering service calls for appropriate administrative arrangements, adequately trained technical staff with

reasonable salaries and career prospects, a careful approach to the purchase of new equipment, sufficient stocks of spare parts, properly-equipped workshops, and a realisation that money spent to prevent neglect can in the long run be economical.

8. Both reports emphasise the need for training, and make recommendations for the establishment of courses on a regional basis. Action on these recommendations is already being taken in several regions.

West Africa

9. As a result of Dr. Riley's investigations in West Africa, the Secretariat was able to offer 15 CFTC fellowships to enable additional students from Commonwealth Africa to receive training at the WHO Inter-Country Manpower Development Project in Freetown, Sierra Leone, to the extent of doubling the 15-month hospital engineering course intake. Not all of the 15 places offered by WHO were filled, however, and the 15 additional places offered by the Secretariat were thus not taken up. It was reported that the reason for the poor response was the level of the pre-entry requirements demanded for the course, and perhaps also the lack of good career prospects in government service.

10. Although, when they considered the matter in October 1976, West African Health Ministers accepted the regional WHO view that the pre-entry requirements should not be lowered, dissatisfaction with the way the course was conceived, particularly the level of the selection test, expressed at the 1976 regional meeting in Kampala, later resulted in proposed reductions both in the length of the course – from 15 months to 8 months in Freetown and 3 months in the participants' respective countries – and in the pre-entry requirements. Commonwealth Secretariat assistance for the course is currently under consideration.

East, Central and Southern Africa

11. Health Ministers in East, Central and Southern Africa decided in November 1976, on the basis of Dr. Riley's report on that region, that a regional training course should be started at the Swaziland College of Technology during the second half of 1977. They considered that the course should pay particular attention to the need to standardise equipment in the region. With Commonwealth Secretariat assistance, the College Principal has visited the WHO training project in Freetown, a curriculum has been prepared and the Secretariat is providing fellowships for the course and assisting with the recruitment of a lecturer.

Caribbean

12. In the Caribbean the need has been accepted to develop a regional centre for the training of medical engineers and technicians, comparable with the existing PAHO centre in Caracas, Venezuela. Caribbean Health Ministers have asked the Government of Trinidad and Tobago to establish a training project for Caribbean personnel. The Commonwealth Secretariat may be able to assist a regional project with training fellowships, if requested.

Asia and Pacific

13. While member countries in Asia appear to have the requisite facilities and resources for the further development of training on a national basis, the needs of developing countries in the South Pacific have still to be met. Governments of member countries in this region may wish to consider Mr. Sutherland's report in the light of recent moves towards the revival of the WHO/UNDP training project, possibly in 1979, based on New Zealand. Joint regional discussion of the question may be desirable to assess how far the WHO/UNDP project will satisfy regional needs, and whether it could be usefully supplemented by Commonwealth regional co-operation, possibly with Commonwealth Secretariat assistance.

RECOMMENDATIONS

14. The value of the studies undertaken by the consultants can be measured only by the extent to which they result in practical action. Ministers of Health may wish to make recommendations for action at several levels, as Dr. Riley's report suggests. In particular, they may wish to consider recommending:

(a) *at the national level,* that governments should take all possible steps to ensure that their countries have a properly planned and organised medical engineering service, and career structure, on the lines described in the consultants' reports;

(b) *at the regional level,* that regional groupings should promote and expand the training of medical engineering technicians on a regional basis, at suitable institutions in the regions, where appropriate in collaboration with WHO regional organisations;

(c) *at the inter-regional level,* that regional groupings should seek ways of sharing their experience, including the exchange of ideas, information and personnel, with the aim of bringing about an early substantial improvement in the standard of hospital engineering;

(d) that the Commonwealth Secretariat should provide all possible assistance to these ends.

4 October 1977

Annex A to
CMC (77) I/A4

Maintenance of medical equipment in certain Commonwealth countries

by Dr. Clifford Riley, MD, MSc, MRCPath, AIHospE

During 1975 and 1976 the author was privileged to visit Malaysia and Singapore, most Commonwealth African countries and most Commonwealth countries in the Caribbean. These visits were made at the behest of the Commonwealth Secretariat with the purpose of investigating the state of maintenance of electro-medical equipment and suggesting ways in which it might be improved.

2. Although many Commonwealth countries have not been visited, the situations observed in those which were recurred so consistently that it is fair to assume that the problems encountered are near-universal in developing countries, although no doubt they vary in severity from country to country.

3. The problem of lack of maintenance of 'electro-medical' equipment has been discussed at Commonwealth Medical Conferences, and it is obvious that malfunction of this particular class of equipment is of the greatest concern to medical personnel. However, it became clear quite early in the course of this series of surveys that faulty electronic equipment was only a small part of a very much larger problem. In fact, all hospital equipment from beds to boilers was found to lack maintenance, often to a most serious degree. Any scheme aimed at improving the situation must therefore be a comprehensive one: the problem must be tackled as a whole, not piecemeal.

4. In almost all countries visited, facilities for repair and maintenance of hospital equipment were poor; sometimes they were non-existent. The main factors responsible for this inadequate service are identified in the following paragraphs.

Lack of administration arrangements

5. In most countries there is no properly structured engineering service. There is no officer of any seniority who can speak at Ministry of Health level and who is charged with the responsibility of overseeing and co-ordinating such services as do exist. There is in fact no-one whose job it is to see that the problem is dealt with.

6. In many countries, certain facilities for repair and maintenance are provided by non-medical government agencies such as works departments. Sometimes facilities are provided by more than one such department. This arrangement is never satisfactory, since a Ministry of Health is unable to set its own priorities and communication between users of this service and the administrators in charge of it is invariably poor. It is often impossible to convey to works departments that breakdowns of some items of medical equipment constitute acute emergencies. Moreover, employees of works departments do not identify themselves with the health authorities and often make their own decisions as to which equipment is their responsibility and which is not.

7. In some countries Ministries of Health have attempted to fill the gaps left by Ministries of Works by adding their own central repair workshops. Whilst the workshops themselves are more or less effective, depending on the skill and personality of the officers in charge, this service is hardly ever really effective outside the hospital where it is based. In addition, there are areas which are ignored by both services, there is liability to friction over finance, and any form of planning is extremely difficult. All these are the drawbacks of divided responsibility.

8. Where there was a discernible administrative structure, the senior officers were insufficiently senior to make their voices heard and managerial skills often appeared to be limited.

Lack of trained personnel

9. Hospitals in manufacturing countries rely heavily on manufacturers to provide service for equipment. This direct service is not available to developing countries, who must therefore find some way of providing their own maintenance staff. The facilities for training such staff are at present quite inadequate.

10. Hospital engineering is a complex subject. One cannot simply take someone with a general training in an engineering subject, place him in a hospital and expect him to deal with a mass of unfamiliar equipment, any more than one can expect a newly qualified doctor to practice neurosurgery. A fairly prolonged period of additional specialised training is needed to create an effective hospital engineering technician. It follows that there are no short cuts to the creation of trained personnel. Crash courses are only likely to produce individuals capable of harming rather than maintaining valuable equipment.

11. There is a requirement for individuals trained to craftsman levels to care for general engineering equipment such as boilers, lifts and air-conditioning plant. There is also a need for persons trained to technician grade in engineering subjects, both for supervisory roles and for further training as specialists in the maintenance of medical equipment. Excellent technical colleges exist in most developing countries, but their students are almost invariably sponsored by industry and there is no surplus left for the hospital service.

12. There is no recognisable career structure for workers in hospital engineering. It is futile to attempt to attract scarce and valuable personnel into a service which gives no scope for ambition. However, salaries are so low in government service, compared with private industry, that they constitute a major deterrent.

Varied types of equipment

13. Any modern hospital contains a great diversity of equipment; this makes the task of the hospital engineer difficult. The diversity tends to be greater in developing countries than in highly industrialised countries. In manufacturing countries there is a tendency to purchase local products; in developing countries, where equipment has to be imported, the advantages of restricting purchases to a particular source of supply are less obvious.

14. A proportion of new equipment is donated and, not surprisingly, donor countries give equipment manufactured by themselves. Problems of maintenance of this equipment can be considerable: for example, maintenance handbooks may be written in languages not locally understood and spare parts may be difficult or impossible to obtain. These problems arise even with equipment donated by international agencies.

15. The purchase of new equipment is often the responsibility of officers who have had little or no technical training, and more often than not the choice is dictated solely by price. There is a lack of up-to-date information about the vast range of equipment available, and purchase is often made without adequate consultation with those who will have to use it or those who will have to maintain it.

16. Although the advantages of standardisation are fairly widely known, various pressures, both internal and external, have so far prevented its introduction except in a few isolated instances.

Lack of spare parts

17. It is exceptional for any spare parts to be acquired at the time new equipment is purchased. In addition, finance departments commonly refuse to provide funds for the establishment of a stock of spares before these are actually needed. There are thus great administrative delays whenever a spare part is needed to carry out a repair.

18. This problem is aggravated by distance from the source, currency restrictions and the high cost of air freight.

19. Defining a required spare part from an inadequately written service manual is impossible for individuals not specifically trained in this field.

20. The whole problem is particularly acute in the case of old equipment which is no longer manufactured.

Lack of funds

21. Such engineering services as do exist are invariably under-financed. In very few cases are workshops adequately equipped (in some there is virtually no equipment), and almost all of them are seriously under-staffed in relation to the tasks they have to perform.

22. Because of the limitations of funds, establishments include disproportionately large numbers of the lowest paid and therefore least skilful grade of worker. It should never be necessary to have more than one untrained helper for each craftsman or technician.

23. A modern hospital is very costly; lack of maintenance can destroy its usefulness very quickly. To restrict funds for the engineering service is therefore poor economy.

Repair or maintenance

24. The result of all the foregoing factors is that little attention is given to equipment as long as it will function to some degree. Only when it will no longer work is it repaired and what was originally a trivial fault may have worsened to the point where it has caused additional and perhaps irreparable damage. The advantages of planned preventive maintenance over repair by crisis are obvious and widely understood, but preventive maintenance cannot be carried out when an engineering service has to operate on totally inadequate finance.

25. Finance officers are generally resistant to the introduction of preventive maintenance schemes because in the short term these appear to be costly. In fact, such schemes can be economical.

Positive developments

26. On the positive side, a certain amount has been achieved. The World Health Organisation has set up a school of medical engineering in Freetown, Sierra Leone. This gives 15 months training in electronics and medical engineering (including X-ray maintenance) to 15 technically trained students drawn from the whole of English-speaking Africa. The Commonwealth Secretariat has offered to finance an additional 15 places. Unfortunately, however, the entrance requirements are considered too high by some countries.

27. Negotiations are taking place for the establishment of a technician training course in hospital engineering at the Swaziland College of Technology. The course is intended for students from the East, Central and Southern Africa region, but places may also be available for candidates from elsewhere. The Commonwealth Secretariat has offered to assist with scholarships where appropriate.

28. A PAHO plan exists for a regional programme in organisation and training in hospital engineering for the Commonwealth Caribbean countries. This would be based on the programme which is at present being implemented in Venezuela. The plan calls for the establishment of a regional training centre based on Trinidad and Tobago. Maintenance units would be set up where they do not already exist and existing units would be up-graded. For training purposes, use would be made of existing teaching institutions, particularly the John Donaldson Technical College in Trinidad. At present the scheme is hampered by the shortage of UNDP funds.

29. Barbados has established a well-organised and comprehensive engineering service entirely under the control of the Ministry of Health. The organisation provides all forms of maintenance, including repair of the fabric and services of hospitals, but at present does not include X-ray maintenance. Any inadequacies are solely due to limitation of funds.

RECOMMENDATIONS

30. A number of detailed recommendations for action by individual countries and by regional groupings have already been made in the reports submitted after the author's visits to each region. Conditions vary from country to country, but the following recommendations may be taken as more or less generally applicable.

31. A modern hospital of two hundred beds can represent an investment of perhaps £2 million and it can become almost useless in a remarkably short space of time due to lack of upkeep. The most expensive factor operating against hospitals and their equipment is neglect. It follows therefore that the ideal solution should be aimed at, as far as funds permit, and because anything spent in this way ultimately constitutes a saving, the maximum effort should be made to secure funds. Action can be taken at three levels: national, regional and inter-regional.

National

32. At national level, the action required is to organise a carefully planned engineering service. The basic plan should be sufficiently flexible to allow for a start to be made on a modest scale with progressive build-up over the years to a fully comprehensive service.

The engineering service

33. The hospital engineering service is best placed entirely under the control of the Ministry of Health and made responsible for the care of everything of an engineering nature that concerns the hospitals. This includes all medical equipment from electro-cardiographs to bed castors and should also include the fabric of the buildings, electricity, water, and sewage disposal.

34. The officer in charge should be a senior officer of the Ministry of Health. Ideally he should be trained in hospital engineering, but whatever his qualifications he should be sufficiently senior to argue the case for his own organisation.

35. The establishment of an adequate and efficient service calls for a variety of technically trained personnel. A lower level of crafts-trained individuals – such as plumbers, electricians, carpenters – will be required permanently on the staff of every hospital. An upper level of technician grade will be required for a variety of purposes. Technicians having a general training in mechanical or electrical engineering will exercise supervisory roles; technicians having special additional training will be needed for the maintenance of X-ray machines, medical electronics equipment and mechanical medical equipment. The aim must be to have sufficient numbers of staff to provide for preventive maintenance.

36. The disposition of specialist technicians will depend to some extent on local conditions. Where distances are great and travel difficult, hospitals will require resident hospital engineering technicians, and in these circumstances their specialised training should cover as wide a field as possible. Where communications are easy, it is more efficient to base the technicians on a central workshop and arrange for regular visits to outlying hospitals. In this case it is best to aim at a high degree of specialisation.

37. The small community has particular problems. The health budget is too small to support a comprehensive engineering service but the facilities are needed as much as anywhere else. The basic maintenance service must be based on resident workers trained to craft levels. For more complex specialist support at technician level, however, such communities must rely on a neighbouring country with suitable resources, under mutually agreed financial arrangements.

Purchase of new equipment

38. Specialist user advisory committees should be set up to guide purchasing officers in the selection of new equipment. The budget for new items of equipment should always include an allowance for spare parts sufficient to cover five years of use. The senior engineering officer should review all proposed new purchases to ensure that they are compatible with existing services and that he can provide satisfactory maintenance.

Spare parts

39. Valuable equipment may be out of action for a year or more because of delays in obtaining essential spares. Whilst it is never possible to cover all eventualities, engineering services should be encouraged to build up a stock of essential spares. Finance officers should be persuaded that this is a long term economy and that funds should be made readily available for this purpose.

Workshop equipment

40. Some existing hospital workshops are seriously under-equipped. This is a poor economy, leading as it does to a low output of work of poor quality. An adequate scale of tools and equipment should be laid down by an experienced engineer, and provision should be made for a considerable wastage of small tools.

Recruitment of technical personnel

41. Although excellent technical colleges exist in most developing countries, most of their students are committed to industry. In order to secure a supply of engineering technicians with general training, Ministries of Health will have to recruit suitable school leavers and sponsor them through technical college.

Salaries

42. It will be futile to attempt to recruit a team of highly trained technicians if salaries are unattractive. It is appreciated that a government service will always find it difficult to compete with private industry; but there is no excuse for paying skilled technicians less than junior bank clerks. Modest but regular increments of salary and increments after the acquisition of fresh skills help to keep employees satisfied.

43. The Commonwealth Secretariat may be able to assist individual countries with the provision of expert advice and with the recruitment of key personnel.

Regional

44. Whilst primary training of technical personnel can be carried out at most national technical colleges, the specialist training of hospital engineering technicians is best provided on a regional basis, in view of the small number of candidates coming forward in individual countries at any one time. The best training centre will be a large technical college; a quantity of specialised equipment and specially trained instructors will be required. Large regions may require two or more training centres.

45. The Commonwealth Secretariat may be able to help with bursaries for students, and may also be able to assist with advice on the setting-up of courses.

46. Three types of hospital engineering technicians are required:

(a) *general hospital engineering technicians,* who should have training in mechanical or electrical engineering to City and Guilds technician level, followed by a specialist course of about 18 months in hospital engineering. Their general role may be supervisory and they will be responsible for maintenance of all engineering devices used in hospital, except electronic equipment and X-rays.

(b) *hospital instrument engineering technicians,* who should have training to City and Guilds level in electrical engineering including electronics, and should have a specialist course in maintenance of medical instruments or, failing that, they should have field training in a hospital which provides such a service.

(c) *X-ray maintenance technicians,* who should have a primary training in electrical engineering to City and Guilds technician level followed by 12–18 months attendance at the training courses provided by manufacturers of X-ray equipment. These technicians are needed in much smaller numbers than those trained in other branches.

47. Where economies are vital, the general technician can be given some additional training in the care of electronics equipment, but X-ray maintenance technicians should always be separately trained. The reasons for this are that the training is highly specialised and the numbers of X-ray maintenance technicians required are relatively few.

Training in maintenance of laboratory equipment

48. Medical laboratory technicians are trained to understand their own equipment and a significant proportion show aptitude for maintenance and repair. When training courses are being set up, facilities should also be provided to give six-month courses in maintenance of laboratory equipment to *selected* laboratory technicians.

Numbers to be trained

49. In training technicians allowance should be made for considerable wastage. It is inevitable that a proportion of trainees will be lost to industry but they will, of course, still be contributing economically to the community. It is suggested that at least twice as many students should be trained as there are hospital posts to fill.

Inter-regional

50. A number of individuals have been working nationally and internationally to improve the standard of hospital engineering. There has been little communication between them, however, so that inevitably opinions on the best course to follow are diverse and many good ideas are undisclosed. A seminar/workshop of such individuals, at which ideas and experience could be shared, would be a valuable aid to working out positive approaches to the problem. The Commonwealth Secretariat may be able to assist with the organisation of such a meeting, which should be held in a developing country.

51. Situations are bound to arise in which it is desirable to send technical personnel from one region to another for special experience and training. The Commonwealth Secretariat may be able to assist with such training visits.

52. Where the number of experienced hospital engineers is small, it may be possible to arrange for the secondment of suitable personnel from elsewhere for short periods to work in an advisory capacity. The Commonwealth Secretariat may be able to compile a list of such individuals and assist with their secondment.

CONCLUSION

53. It is clear that the problem is a complex one with no easy solution. However, the first step towards alleviation will have been taken when Ministries of Health take complete control of all hospital engineering services. The second essential step is to establish an engineering career structure and arrange for the training of hospital engineers.

54. The preparation and planning of a satisfactory engineering service will take time and full implementation will take several years. Early decisions are therefore imperative if a substantial improvement in the maintenance of medical equipment is to be achieved.

4 October 1977

Annex B to
CMC (77) I/A4

Report on maintenance and repair of medical equipment in Commonwealth countries of the South Pacific

by R. D. Sutherland

During the period March–May 1977 I visited Fiji, Papua New Guinea, Tonga and Western Samoa at the request of the Commonwealth Secretariat to examine present arrangements for the maintenance and repair of electro-medical equipment and to recommend ways in which these might be improved. I was also asked to assess the potential for relevant training within the South Pacific region, particularly in the developing Commonwealth countries, and to recommend how existing facilities might be supplemented and training courses started. I also visited New Zealand for liaison and information purposes and had discussions with officials of the Australian Department of Health in Canberra.

2. In all the countries visited I received ready co-operation in my assignment and I am grateful to their Governments and to all the persons concerned for their assistance. My thanks are also due to the Commonwealth Secretariat for the opportunity to undertake the assignment and for the necessary funding from the Commonwealth Fund for Technical Co-operation; to the Hospitals and Charities Commission, Victoria, Australia, for permission to take up the assignment and their support in its fulfilment; and the Australian Department of Health for their excellent advice and encouragement.

3. A separate report on the situation in each of the four developing countries visited has been submitted. The report which follows contains my general findings and recommendations.

GENERAL FINDINGS

4. The desire for good and modern health care facilities, including efficient electro-medical equipment, is evident in all four developing countries visited, but there is a clear need for improved facilities for the maintenance and repair of medical equipment. Countries are precluded by economic considerations, however, from equipping hospitals to the levels they desire and from providing the necessary technical support.

5. There is also the desire that as much as possible of the maintenance and repair of medical equipment should be performed by local staff in the countries themselves, under the control of local health authorities.

6. Where advanced equipment-oriented training is concerned, there is a definite education gap at both secondary and tertiary levels.

7. There are variations in the present capacity to handle the overall problem in the developing countries visited, and some are already advanced in their organisation and planning. Existing arrangements are mostly inadequate, however, and the difficulties are likely to become progressively greater as further equipment, particularly sophisticated equipment, is installed in the future.

8. It is evident that none of the developing countries can, as things stand, be self-supporting in the provision of facilities and staff for the installation, maintenance and repair of their medical equipment.

9. There is a definite need for rationalisation of equipment purchases if a successful maintenance programme is to be achieved. The purchase rationalisation plan in Papua New Guinea, which will reduce the number of types of equipment and so facilitate maintenance and the ordering of spares, is an encouraging move in that direction, on their part.

10. A range of equipment and expertise is required to maintain and repair hospital equipment already installed. This is an expensive business and needs careful planning and organisation, and probably assistance from a country already experienced in this field of activity.

11. The desire for future self-sufficiency in connection with the maintenance and repair of medical equipment was expressed in all the developing countries visited. It is felt, however, that even with the best organised programmes for producing trained and experienced staff, it would be at least ten years (probably more) before suitably trained and experienced nationals could become available for responsible positions.

12. Papua New Guinea is the only one of the developing countries visited which has a suitable training scheme in general electronics and instrument technology, at its Posts and Telegraph Technical Training College. This scheme could not produce a trained *general* technician in under 4–5 years, however, and further training and subsequent experience in medical instrumentation would be essential before competence in this field could be assured.

13. A training course to produce medical engineering technicians may well be designed on a co-operative basis, with joint participation by developing countries in the region. This would be a long-term proposal, however, and would probably not be able to produce the first responsible technicians within ten years. Continuing outside support would be necessary to support this, and to provide bridging technology at a suitable level.

14. Any training programmes should be aimed at producing medical engineering *technicians.* To aim at a higher level would at this stage be unrealistic.

RECOMMENDATION

15. In view of these findings, it is recommended that the Governments of the developing countries of the South Pacific should approach the Government of an appropriate Commonwealth country with a view to providing in the short-term (say, approximately ten years) practical assistance to those countries. Such aid should include:

(a) *an advisory bureau,* aimed at the rationalisation of purchasing equipment, and of the necessary maintenance programmes needed to support that equipment;

(b) *engineering and technical support* for existing equipment, installation of new equipment, maintenance programmes, the on-going medical engineering requirements, and training programmes; and

(c) *the organisation of training programmes* for nationals of the developing countries, so that the responsibility for both (a) and (b) above can be progressively taken over by those countries.

4 October 1977

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REVIEW OF ACTION TAKEN FOLLOWING THE FOURTH COMMONWEALTH MEDICAL CONFERENCE

Procurement of Medicinal Drugs

Paper prepared by the Commonwealth Secretariat

With the object of ensuring that medicinal drugs and other consumable medical items are obtained at reasonable prices, the Fourth Commonwealth Medical Conference requested the Secretariat to examine the feasibility of bulk purchase. The consultant engaged for the purpose, Mr. E. Fawcitt, was asked not only to study ways of lowering the cost of imported drugs but also to consider the prospects for regional co-operation and local manufacture and arrangements for distribution, quality control and storage.

2. Mr. Fawcitt visited selected member countries in Africa, Asia, the Caribbean and the Pacific. At the conclusion of his visit to each region he submitted separate reports which were subsequently sent to governments and regional agencies. An interim general report was submitted to the 1976 Pre-WHA Meeting in Geneva. Mr. Fawcitt's final report containing his general findings and recommendations is attached as an Annex to this document.

Findings

3. The report points to the need for governments to review their present arrangements for the purchase, storage and distribution of medical supplies, and, where appropriate, to reorganise them so that an efficient and economical supply organisation is ensured. It underlines the benefits to be obtained through regional co-operation in the purchase, manufacture and quality control of medicinal drugs. It also emphasises the need for suitably-qualified staff. The consultant's main recommendations are conveniently summarised at the end of the report.

Regional action

4. Action in line with the recommendations has already begun in the regions.

5. In the *Caribbean,* a regional drug policy and purchasing project, already being developed, involves bulk purchase through a master contract system, with direct delivery to individual countries, prescription by generic name rather than commercial brand, and the preparation of national and regional formularies. The establishment of a regional drug-testing laboratory is also under consideration. Caribbean Health Ministers decided at their meeting in June 1977 that a list of essential drugs should be prepared and that assistance should be sought (from UNIDO and other sources) for the establishment of co-operative pharmaceutical production and technology centres to co-ordinate production, disseminate information and provide guidance on importation, production, training and marketing, the aim being to foster a common drug policy for the region.

6. In the *South Pacific,* a regional meeting to discuss collective purchasing of medical supplies was held in April 1977 with support from the Commonwealth Secretariat. The meeting, which was organised by the South Pacific Bureau for Economic Co-operation (SPEC), considered a report prepared by SPEC and agreed on various matters to facilitate regional co-operation in obtaining medical supplies and on the exchange of information on suppliers and their prices. In particular, it was agreed that certain items required by other island member countries should be included in the Papua New Guinea tendering scheme; Fiji offered to supply small quantities of certain items to the smaller countries from its own stocks. Moves to standardise medical stores catalogues were also approved.

7. In *East, Central and Southern Africa,* the consultant's recommendations were considered by Health Ministers in late 1976 and it was decided that a regional meeting of chief pharmacists should be convened to consider the matter in detail. A similar decision was made by Health Ministers in *West Africa.* Commonwealth Secretariat support for these meetings is being provided.

RECOMMENDATIONS

8. Ministers of Health may wish, having taken note of the discussions and decisions that have already taken place at the regional level, to consider the report along the following lines:

At national level

(a) that governments should review their existing arrangements for the purchase, storage and distribution of medicinal drugs and other medical supplies, so that an efficient and economical supply organisation is ensured;

(b) that staff dealing with medicines at various levels should be suitably trained, and that, where appropriate, use should be made of diploma pharmacists (pharmacy technicians);

(c) that all possible steps should be taken to ensure that medicines are of satisfactory quality;

At regional level

(d) that a regional multi-disciplinary body should be formed to consider and make recommendations to Health Ministers of the region on:

(i) the feasibility of regional contracting for medical supplies;

(ii) planning for the manufacture of medical supplies within the region;

(iii) the development of indigenous medical resources;

(iv) the introduction of a regional catalogue of medical supplies;

(v) the training of graduate and diploma pharmacists on a regional scale;

(vi) regional co-operation in the provision of pharmaceutical advice; especially to smaller countries lacking professional staff;

(vii) the introduction of regional pharmaceutical standards and laboratory testing;

(viii) regional harmonisation of medicines legislation;

At inter-regional level

(e) that regional organisations should liaise with each other, and with relevant international organisations, on regional procurement and manufacture of medical supplies, and on the development of indigenous medical resources;

(f) that regional testing laboratories should exchange technical information;

(g) that there should be inter-regional co-operation in the training of pharmacists and, where appropriate, the exchange of staff;

Commonwealth Secretariat

(h) that the Secretariat should provide support for these purposes.

17 October 1977

Annex to
CMC (77) I/A5

Procurement of Medicinal Drugs in Developing Commonwealth Countries

Report by E. Fawcitt ISO, FPS

Commonwealth Secretariat
London

June 1977

CONTENTS

Procurement of medicinal drugs in developing Commonwealth countries

The Fourth Commonwealth Medical Conference, in Colombo, 1974, recommended an investigation of the procurement of drugs and their distribution, particularly in rural areas. I was asked by the Commonwealth Secretariat to examine the current practices and report.

2. My terms of reference were to recommend ways in which procurement and quality control procedures could be improved, with special reference to the needs of developing Commonwealth countries, by

(a) existing agents;

(b) Commonwealth governments, individually or jointly; and

(c) any other means.

3. Since November 1975 I have visited 20 Commonwealth countries. In each country I have been received with courtesy and sympathetic attention; everyone has been most helpful. I especially thank members of the Medical Division of the Commonwealth Secretariat for their assistance and for their interest in the compilation of this report. I am, of course, solely responsible for any errors of judgement, fact and style which may remain.

The present situation

4. During my visits I examined methods of purchase, storage and distribution of medical supplies and visited hospitals, health centres, laboratories and factories. I saw health auxiliaries treating patients under primitive conditions, but I also saw purpose-designed clinics and dispensaries built by rural communities themselves. These are often run by dedicated, well-trained health officers and staffed by resident nurses and members of the community.

5. Attitudes towards the development of rural health care are changing and the outlook is encouraging, but as far as medical supplies are concerned there are few signs of improvements in the old routines. This may be due partly to economic stringency, but some senior people are easily discouraged and content to let things continue in the old ways. The revision of buying methods must be accompanied by improvements throughout the supply system or much of the savings to be obtained will be lost and patients will be little better off.

6. Medicines are usually issued in bulk from the central store, dispensing facilities are often crude and patients provide their own, more or less clean, containers. Tablets are given to patients in screws of paper and this naturally leads to waste and poor treatment. This undesirable practice is also followed in some major hospitals, which should set standards for the rest of the country.

7. Several professions are involved in the purchase, supply and use of medicines and other medical supplies. The pharmacist has a detailed knowledge of the standards, composition and storage of medical supplies and is concerned at all stages to ensure that the patients get what is prescribed. The graduate pharmacist, as the technologist responsible for the proper provision of medicines, should not spend much time on routine day-to-day dispensing; he may handle difficult dispensing problems but his main duties are advisory and supervisory in health departments and the running of large units. Staff at all levels should be trained for the work undertaken. The greatest need is for diploma pharmacists (pharmacy technicians) whose job is to make sure that the correct medicine is handed to the patient.

8. In general, health departments recognise that the purchase, storage and distribution of medical supplies is wasteful and should be reorganised. Frequently medicines are imported at high prices and their costs use up a large proportion of the pharmaceutical budget, leaving little for the purchase of other medical supplies. Departments plead the lack of money for new buildings and equipment, too few qualified staff and low priority for medical supplies. I can only give broad guidelines and each region must study its own situation and work out which proposals are most likely to form the basis of an efficient and economical supply organisation.

The scope for regional co-operation

9. Provided that there are efficient distribution systems both regionally and nationally, there is scope for regional purchasing at competitive prices of the total quantities of medical supplies for both rural and urban services. Regional procurement can be based on regional contracting or regional purchasing or a combination of the two. Some medical supplies are common to all health services and might be subjects of global purchases.

10. A regional contract unit would arrange contracts with selected contractors and each participating country would order and pay for its own requirements. A regional purchasing unit or depot would purchase supplies on the best terms and supply countries on repayment. Whether supplies are bought directly or through a regional depot, each country will require its own stores organisation to prepare estimates, place orders and check invoices in addition to controlling domestic supplies. If a country orders directly from contractors it will have to hold buffer stocks to cover delays in delivery; if it draws supplies from a regional depot it will need to hold smaller stocks.

11. Medicines and other medical supplies should comply with minimum acceptable standards, but many countries have insufficient testing facilities. Regional procurement should be accompanied by a comprehensive laboratory, but at national level only a limited number of tests need be carried out.

12. While a complex pharmaceutical industry may be beyond the needs and resources of a group of small Commonwealth countries, it might be worthwhile to set up a regional commercial or government-controlled unit to make transfusion solutions. It might also be worthwhile to set up a unit to pack and label tablets in agreed quantities suitable for supply direct to patients.

13. The proposed reorganisation of the procurement of medical supplies requires the agreement of all countries in a region. This calls for regional and national consultative machinery, part of which will be temporary until the scheme is working and part will be permanent to monitor performance and recommend improvements.

REORGANISATION MACHINERY

14. The proposed modernisation can be brought about only by discussion and agreement. Each country and region should set up a multi-disciplinary committee to be concerned with the economic procurement of medical supplies used in the health services.

National committees

15. Each national committee might include:

one accountant
two administrative civil servants
one dentist
two doctors
two nurses and
two pharmacists.

It would deal with the following matters:

(a) provision of pharmaceutical advice to government departments;

(b) preparation of a list of essential medicines and a national medical formulary;

(c) advice on the groups of people authorised to prescribe or administer expensive, scarce and special medicines;

(d) liaison with manufacturers; and

(e) liaison with the regional committee concerned with the procurement of medical supplies.

Regional committees

16. The regional committee would include national and industrial representatives and professional members. It would deal with:

(f) organisation and running of the regional contracting or purchasing unit;

(g) liaison with other regional committees and international organisations on matters of mutual concern;

(h) the development of indigenous medically active resources; and

(i) plans for a pharmaceutical industry.

A working party of experts should be formed to survey existing testing laboratories and advise on essential additional facilities in the region.

PROCUREMENT OF MEDICAL SUPPLIES

17. In the countries that I have visited there are only small variations in the purchasing processes on government account based mainly on what was done before independence. There are unlikely to be more than marginal improvements in the costs of medicines bought by individual countries, although Nigeria is examining its present system and Kenya has called in experts to advise on the whole field of government purchasing and stock control.

18. Manufactureres will always try to sell their standard packs of medicines, and for small orders they will adopt a "take it or leave it" attitude. Bargaining power increases with the size of the order and a purchasing unit can expect better terms and be able to stipulate firmer conditions on quality, packaging and delivery if it is ordering on behalf of a number of countries.

19. Medicines can be imported in several forms:

(a) the finished pharmaceutical product in small containers ready for supply to patients;

(b) the finished pharmaceutical product in bulk containers to be suitably packed and labelled for supply to patients;

(c) as the active drug in bulk – this has to be processed to make the finished pharmaceutical product for supply to the patient after being suitably packed and labelled.

Each country uses a combination of these methods depending on its requirements, its expertise and its facilities for storage, packaging and manufacturing.

Public and private sectors

20. In countries with national health services there still exist private sectors encouraged by doctors seeking additional remuneration, by pharmacists dispensing expensive proprietary medicines and by patients who do not wish to associate with poorer members of the community or who are prepared to pay for additional privacy. Unless the facilities in government hospitals and clinics are very much improved – and this will be costly – there is probably no alternative to the continuation of private practice.

21. However, the government could buy some items, particularly proprietary products, on behalf of the private sector and seek better contract prices for larger quantities. The government would then charge a percentage on the contract price to cover its overheads and allow a percentage mark-up for retail sales. The number of formulations of a medicine and its price might be reduced by registering the latest product only on condition that its price is lower than its competitors.

Control over prices and reliability

22. Many countries have some form of control over the prices of medicines, and developing countries – either individually or regionally – should consider similar controls. Manufacturers

could reasonably be expected to charge importers not more than the price officially agreed in the country of origin plus freight charges. There is no reason why purchases on government account should be expected to subsidise the cost of advertising in other countries. The price in the country of origin should be known to purchasers when they adjudicate on competitive quotations. This price should be disclosed by the tenderer or obtained through official channels. Developing countries and regions should compare the prices that they are paying for medicines, but such comparisons should be made with due regard to rapid price changes in a competitive market, to delivery charges and to the terms of payment.

23. There are several methods of charging commission on purchases of medical supplies, some of which are of world-wide general application:

(a) the local agent gets commission on all imports from his principals, whether or not he handles any of the paper-work or goods;

(b) a manufacturer's regional branch collects a commission on all supplies entering a region, whether or not there is a local agent in a particular country;

(c) the local agent receives a commission when supplies are arranged by the Crown Agents, who themselves charge for services.

The local agents and regional branches may or may not earn their commission, but the regional purchaser should at least know what services are being paid for and whether the payments are justified.

24. Countries might also exchange information on manufacturers' reliability, but on the basis of facts not opinions. Alternatively, they might consider exchanging such information through an official organisation such as the World Health Organisation or the Commonwealth Secretariat.

Regional contracting

25. The cheapest way of importing medical supplies into a region is through contracts for large quantities delivered to one point in the region. Against this must be set the cost of distribution to individual countries. Regional procurement of medical supplies can be organised through contract or purchasing units. A regional committee should examine existing purchasing schemes, including the Caribbean scheme and the proposals of the South Pacific Bureau for Economic Co-operation for collective purchasing, and should consider:

(a) how far it should go towards a state buying service for medical supplies for both the public and private sectors;

(b) how far imports and the local manufacturers of medicines should be restricted to products in the medical formulary;

(c) its policy on the use of combinations of drugs, of proprietary and generic preparations and of expensive medicines;

(d) its need for quality control and import control;

(e) whether local manufacture should be protected in its early stages of development by tariffs or by preferential treatment when regional contracts are awarded – protection should be reviewed frequently and should not be used to hide inefficiency;

(f) the planning of purchases for a number of years ahead – this applies particularly to instruments and equipment and should help to prevent more models than are necessary being used in a region;

(g) the use of expert advice on modern methods of accounting and stock control;

(h) the adoption of standard government conditions of tenders and contracts and special conditions for medicines – these conditions would take account of each country's responsibilities as a purchaser and of contractors' responsibilities on delivery and quality.

The committee should recommend an appropriate scheme, agree on guide-lines for running the unit and monitor its performance.

Regional medical supplies catalogue

26. A catalogue of all medical supplies is essential for any scheme of regional procurement. It will be of use in the design of tender, contract and requisition forms. It will simplify clerical work and store-keeping, adapt to use with computers, eliminate misunderstandings and serve as a price list. The catalogue could be based on existing catalogues or those used by international agencies. Whenever possible, it should use international non-proprietary names (INN) or national non-proprietary names for medicines and include a cross-referenced list of proprietary names.

National medical formulary

27. The Health Deaprtment should appoint a committee of experts to compile a national medical formulary and revise it when necessary. A formulary is primarily a list of medicines which are agreed to be of use nationally in patient care and are available from government stores. It will include the composition of these medicines and relevant pharmacological information; it might contain other information concerning the treatment of patients by doctors and nurses. It could also indicate which medicines can be prescribed by junior doctors without reference to their seniors and which can be supplied by health auxiliaries without reference to higher authority.

Essential list

28. The World Health Organisation, non-aligned countries and some Commonwealth countries are preparing lists of medicines to be used in rural areas. A regional list of essential medicines must reflect usage in the largest country in the region or it will be unacceptable. There is no typical rural area and it is not clear what value such lists will have. They can only illustrate each country's economic circumstances, the degree of sophistication of its health services and its disease pattern.

29. Doctors, nurses, pharmacists and other health workers should decide together what treatments can be carried out by health auxiliaries at health posts and what medicines can be supplied for use in the home. A national list of essential medicines and medical supplies must then be prepared and should be reviewed as necessary to replace older medicines with newer ones that have proven and appreciable advantages. The number of essential medicines required to meet the immediate health needs of a rural population is small but the total quantities used in a country can be very large.

30. Ideally these essential medicines should be packed in the medical store in suitable labelled containers holding agreed quantities. They should be issued to the health posts and supplied intact to the patients.

Regional medical supply contract unit

31. A contract unit would summarise the estimated quantities of medicines required by governments in a region and issue tender forms. Terms could be issued to all who ask for them or to selected contractors, manufacturers or repute and agencies such as UNICEF, ECHO, (the Joint Mission Hospital Equipment Board Limited), similar European concerns and the Crown Agents. A contracts board would adjudicate on the quotations received and award contracts when it was satisfied that the selected contractors had the financial and physical resources to meet the contract and the ability to supply satisfactory products.

32. Each participating country would order its requirements directly from the appropriate contractor and would be responsible for the settlement of its own accounts. Each country would be expected to take up an agreed minimum proportion of its own estimated quantities or arrange for another participant to assist. Some countries might be short of a particular currency to settle their accounts and access to a currency pool would be useful.

33. The unit could be staffed by member countries, by an international body such as WHO or UNICEF or by an ad hoc organisation. It would have access to specialist advisers – financial, legal, medical and pharmaceutical – it would use modern office facilities and be guided by representatives of the member countries. Its expenses could be met by fees for the supply of tender forms, by contributions from member countries and as aid from developed countries.

34. There is a parallel in England where most of the medicines used in National Health Service hospitals are bought by hospital authorities directly from contractors under regional contracts placed by Regional Health Authorities. A Regional Health Authority is responsible for the health needs of two to five million people.

Regional medical supply depot

35. A regional medical supply depot should hold a variety of items in sufficient quantities to meet the requirements of all participating countries. It should hold larger quantities than are required to meet one year's usage; this buffer stock will eliminate difficulties due to delays in deliveries and sudden demands to meet epidemics and catastrophes. Supplies would be purchased by the depot through contracts arranged by its own contract branch or an independent contract unit which would function on the lines of the alternative contract unit discussed earlier.

36. The depot should be sited with due regard to local resources, testing facilities and sea/air transport to member countries. A comprehensive laboratory is essential to examine tender samples and supplies from contractors and to investigate complaints. It should of course use existing laboratories rather than set up expensive duplicate equipment.

37. Each participating country would indent for supplies on agreed dates and supplies would be charged at the purchase price plus a percentage or fixed charge to cover the running cost of the depot.

Storage and distribution

38. Medicines are expensive and represent an appreciable proportion of the resources used in the health services. They are potent, they have been standardised and they are liable to deteriorate if they are not kept in the appropriate environment. Sub-standard medicines can be dangerous to patients because of the development of toxic degradation products or because they are too weak to produce the required effect. It patients are to have the proper benefit from their treatment and if doctors are to have confidence in the medicines which they prescribe, it is most important to have efficient storage, stock-control and distribution procedures to ensure that the quality of the medicine is maintained at all stages.

39. Government medical stores are frequently housed in old and dilapidated buildings which were erected for quite different purposes. The volume of medicines used in health services is increasing and in many countries modern storage is urgently required. Various medicines and medical supplies such as X-ray films and rubber must be protected against high temperature, excessive humidity and bright light. Extra security is essential for products liable to misappropriation in store and in transit, some because of their high value on the open market, others because of their addictive properties.

40. Stock control and distribution procedures should be brought up to date by the elimination of unnecessary and duplicate paper routines and by the institution of efficient stock-taking processes which concentrate on the most expensive medicines and those liable to misappropriation. Some developing countries have called in experts to advise on store techniques and it would be sensible for such advice to be made available to neighbouring countries.

41. Statistical concepts applied to stock control should lead to a more efficient use of the budget. The frequency and size of orders and the levels of buffer stocks should be determined when acceptable risks of running short of stocks have been agreed. A high turnover rate has the

advantages that lower stocks are carried, there is less capital investment, less storage space is required and deterioration in store is reduced. However, frequent orders raise the total cost of order preparation and increase the possibility of running out of stock. The cost of holding stock forms quite a high proportion of the total cost.

PHARMACISTS AND OTHER STAFF

42. Pharmacy is concerned with the preparation of medicines and the maintenance of quality to ensure that the patient is given what is prescribed. Economy in the use of medicines requires that they are properly stored, distributed and dispensed. These functions must be undertaken by trained subordinate staff and the lowest grade of pharmacist or technician compatible with an efficient service.

43. Graduate pharmacists should provide up-to-date expertise at advisory and supervisory levels in government departments, teaching hospitals, schools of pharmacy, regional contract and supply units, factories and control laboratories. In several countries few large hospitals have graduate pharmacists; consequently clinicians are not getting the best available advice on the properties of the medicines they wish to prescribe. The degree course lasts from three to four years and the emphasis is on the general principles of pharmaceutical sciences and the ability to apply these principles during the graduate's professional life. Schools of pharmacy in developing countries should also aim to produce graduate pharmacists oriented to the real health needs of the societies in which they will work and be able to contribute to the development of health technologies for primary health care. Graduates should be encouraged to take refresher courses and accept WHO or other international fellowships.

44. Diploma pharmacists, called pharmacy technicians in some countries, are very urgently needed for the day-to-day running of dispensaries in small hospitals and some health centres and in sections of manufacturing and supply units. They should perform clearly defined duties under the general supervision of graduate pharmacists at provincial levels, and in turn should guide and supervise health auxiliaries who handle medicines at health posts in rural areas. The diploma course lasts from one to three years, depending on entry standards, and concentrates on the practical aspects of pharmacy. The syllabus should also emphasise general participation in health activities and the special problems which exist in rural areas. The smaller countries should consider sending their students to existing training institutions in their respective regions rather than using resources to set up additional training units.

45. Health auxiliaries should be trained in the recognition, care and use of the essential medicines used in rural areas where it is more important to provide basic treatment for the majority than sophisticated treatment for a few. The main need in such situations is for sufficient numbers of diploma pharmacists to supervise the people who actually give medicines to patients.

46. As part of the modernisation of medical stores, storekeepers and ledger clerks should have initial training and refresher courses. These grades should be used in regional and national stores and in the larger hospitals which supply the district hospitals and health centres. When store accounts are adapted for use with computers some of them will require training in the use of computer terminals.

47. Very small countries cannot always justify the full-time employment of professional staff. There should be one or two peripatetic pharmacists based on one of the larger countries in a region. They should visit the smaller countries regularly to see that medicines are properly stored and controlled, to train auxilliary staff and advise as required.

48. I do not propose to describe or devise stores procedures or training manuals, but whatever form of regional supply machinery is adopted, there must be standardisation and uniformity both nationally and regionally. Standardisation of nomenclatures and coding and uniformity of procedures, forms and staff duties are essential. A handbook of clerical and administrative pro-

cedures and a manual for medical store staff should be used in each region. If store accounting for other government stores has been successfully mechanised, then medical store accounting should be brought into line. Senior clerical and stores staff both national and regional and in the principal hospitals should interchange occasionally so that they can appreciate each other's problems and the reasons for particular routines.

49. Additional professional people will be required for the implementation of legislation to control the registration of medicines and the inspection of pharmaceutical factories. Inspectors should be graduates in appropriate subjects with additional experience in industry or laboratories. They should study control procedures in other countries and adopt appropriate standards. They must have the respect of the pharmaceutical industry and be able to meet industrial experts on equal terms.

50. Each region should aim to form a small group of consultants to advise member countries on all aspects of medical supplies. They should be employed in the health service or the pharmaceutical industry and be available to advise as required. These consultants should preferably be recruited within the region, have basic professional qualifications and be sent abroad for experience and advanced training through WHO, other international or Commonwealth fellowships.

MANUFACTURE OF MEDICINES

51. National self-sufficiency in the production of medicines is a theoretical concept which may be hard to justify and will be very difficult to realise in developing countries, at least in the near future. Many Commonwealth developing countries have very small populations and the advisability of local manufacture depends not only on the immediate question of monetary cost but also on the direction of a country's socio-economic development strategy and the priority given within that strategy to self-reliance. Most available capital and expertise will be needed for the production of food, the improvement of social conditions and the creation of new employment in economic and social conditions are to improve rapidly.

52. The manufacture of a medicine consists, in general, of a series of chemical processes which result in the production of a chemically pure, medicinally active compound followed by a series of manipulations to make a suitable dosage form in a convenient container. The manipulations include formulating, filling, packaging and labelling. These processes and manipulations must be controlled by analytical and testing procedures and subjected to statutory restrictions on quality, environment and expertise.

53. The extent of any country's pharmaceutical industry depends upon its level of technical development and on the availability of other major and subsidiary industries, capital, power, raw materials and highly trained engineers, executives, scientists and technologists. India and Nigeria have some of each of these resources and are building up pharmaceutical manufacturing units capable of making some modern medicines, but each is in some degree dependent on expertise and materials from more highly developed countries. No one country has a monopoly in the manufacture of medicines; there is specialisation and continuous exchange of information on new products and processes. There is no point in a developing country starting a new pharmaceutical industry in isolation; all have a tremendous leeway to make up and should profit whenever possible from past and current developments elsewhere.

54. Any decision to develop a pharmaceutical industry should be preceded by:

(a) estimates of consumption, both national and regional;

(b) investigation of currently available sources of supply and prices of intermediate fine chemicals, active ingredients and formulations;

(c) design and costing of buildings and equipment;

(d) estimates of the availability of trained and trainable personnel.

Regional co-operation

55. In the long term, Commonwealth developing countries might wish to study the possibilities of encouraging or undertaking the manufacture of medicines on a co-operative or regional basis. It may be mutually advantageous to join with non-Commonwealth countries in a region; a larger total requirement will lead to economies of scale. They should be selective in the products that they wish to make, keeping in mind that some of the commoner medicines used in rural areas may have such a large world-wide demand that it is uneconomic to make the smaller quantities required in one region. In such cases the medicines could be imported in bulk and converted to the appropriate preparations. Developing countries should also decide which processes and manipulations can be carried out efficiently and which intermediates and finished medicines they should import. They will presumably seek advice from such international organisations as WHO, UNIDO and UNCTAD and take part in the activities of the proposed Regional Co-operative Pharmaceutical Production and Technology Centres (COPPTECS) – (NAC/CONF.5/S/RES.25 19 August 1976).

56. Any production units to be set up following COPPTEC deliberations will of course take time to plan and build. Meanwhile, each region should survey its usage of transfusion solutions and the cost of imports. Until a pharmaceutical industry is developed, the regional medical supply depot could include a production unit for transfusion solutions widely used in both rural and urban health services.

Packaging and labelling

57. Some authorities issue tablets to rural and hospital out-patients in scraps of unlabelled paper. This unhygienic practice may be cheap initially but does not ensure that the patient will get the correct medication and recover as quickly as he ought. Whenever possible, medicines should be pre-packed in agreed quantities in correctly labelled containers. These containers must close properly and stand up to extremes of humidity and temperature. Labels should take account of local languages and the high level of illiteracy that exists in many areas. Increased expenditure on both containers and labels is essential if medicines are to retain their efficacy. Whoever is appointed to run units to make transfusion solutions and pre-pack tablets should study in detail the processes, equipment and economies of small units, such as exist in regional depots in Britain.

Indigenous plants and traditional medicines

58. Traditional health practitioners have used indigenous plants for a very long time. Nowadays plants are sources of important raw materials and precursors for synthetic medicines and are likely to be required for the foreseeable future. Each country and region should investigate its indigenous plants and identify research fields appropriate to local health needs and international demands for raw materials. They should then specialise and study large-scale cultivation. The results should be shared with neighbouring countries and other regions.

QUALITY OF MEDICAL SUPPLIES

59. Recent advances in medical and pharmaceutical sciences have led to the introduction of more potent and selective medicines. Precision in their use has led to more precise medical treatment. As a direct result, incorrect use or incorrect quality can result in inadequate treatment or even danger that did not exist in earlier decades when the relatively impotent bottle of medicine had wide margins of efficiency and safety.

60. Countries with very restricted budgets for medical supplies sometimes take the view that some treatment is better than none at all and that they should buy the cheapest medicine with the minimum regard for quality. Such countries will benefit from regional contracts or regional purchasing of medicines of satisfactory quality at competitive prices. The quantity/quality conflict, where higher quality means fewer beneficiaries, must be considered when placing

contracts for the supply of medicines in developing countries. Current emphasis is on the cure or prevention of ill-health in rural areas, which have by far the larger proportion of the total population in most developing countries. We are not primarily concerned with the niceties of expensive formulations and the greatest good for a given cost will be got by buying generic products, but this does not mean buying the cheapest possible product without regard to quality. Nor does it mean that the medical schools and principal hospitals, which must be seen as centres of excellence, should be denied advanced medicines as long as they can justify their use instead of the generic products.

Manufacturers' practices

61. Some manufacturers make several formulations of a particular drug and market it under several proprietary names. Such formulations are often held out by them to be superior to the corresponding official or generic products and are sold at higher prices, sometimes much higher. There are discussions and arguments about the therapeutic values of the several formulations but few firm decisions have been made. Recently United States authorities, while admitting that current regulatory standards did not ensure drug bio-equivalence, concluded that for most commonly prescribed medicines the bio-equivalence of products from different manufacturers is sufficient for interchangeable use.

62. There are instances where a manufacturer makes one preparation some of which is packed and marketed under a proprietary name and some is offered under the generic name at a lower price. There are also instances where two companies, members of the same group, practice pseudo-competition: they market the same preparations for the same indications under different names without disclosing the relationship between the two companies and between the two products. A similar situation arises when two companies arrange to market the same drug under different proprietary names. The existence of such arrangements is rarely mentioned in relation to the drug. (D & T Bull. vol.14, no.14: 1976, p.53)

63. Sub-standard medicines may appear on the market for several reasons:

(a) prolonged or unsuitable storage somewhere in the supply line can cause deterioration which is detectable only with difficulty;

(b) the product may be approaching its expiry date and may be offered at a low price;

(c) medicines which do not pass all tests during manufacture may be leaked to unsuspecting buyers;

(d) medicines may be withdrawn because of adverse reactions but quantities in the supply line may be offered at low prices.

64. Non-standardised medicines may be produced for export only, because the disease concerned does not exist in the manufacturer's country. In such cases the manufacturer does not have to apply for registration of the product in the country of origin. The importing country will have to make sure that proper standards of manufacture are observed and that the product is efficacious.

65. If a government purchases at prices reduced for the above reasons it takes risks which should be made known to prescribers.

Pharmacopoeial standards

66. Standards of composition and purity and the appropriate tests are described in pharmacopoeias. There are national, international and supranational pharmacopoeias and they may describe different standards for the same product. These differences may reflect the use of different testing methods or may depend on the date of publication. However, they usually have little effect on the efficacy of the product concerned. These technical differences can usually be ignored so long as the particular pharmacopoeia is stated on contracts and labels.

67. Pharmacopoeial authorities try to produce reasonably acceptable standards but, because of national pride and the influence of the multi-national manufacturers, such standards for purity may be higher than necessary. Analytical apparatus undergoes improvement, or rather is made increasingly sensitive and capable of detecting smaller and smaller proportions of impurities. Purchasing authorities in developing countries should guard against this demand for greater and greater purity and consequent increased processing costs when there is no parallel increase in efficacy or decrease in toxicity of the medicine.

68. Countries should adopt standards relevant to their particular problems and needs but, as far as possible, standards should be decided regionally. Developing countries require methods of testing which use less sophisticated equipment but which avoid giving the impression that 'double' standards are being applied – one for richer, one for poorer. The 'better' standard is one that is capable of being applied in the given environment.

69. The World Health Organisation has proposed that "for well-established drugs in general health care, basic tests should be developed for use at the country level where properly equipped and staffed drug control facilities are not available. Such tests would be primarily designed to confirm the identity of pharmaceutical substances and to ensure that gross degration has not occurred. The tests might be undertaken by government laboratories set up for different testing and investigation work if all that is required is a minimum of additional equipment and specialist staff. This recommendation is being followed up in the revision of drug quality specifications for publication in the new edition of the International Pharmacopoeia". (WHO Chronicle 30:282, 1976)

Standards for other medical supplies

70. In general, the discussion has centred on medicines with emphasis on quality and efficient purchasing, but the same principles apply to medical supplies as a whole. There are standards for some surgical dressings, instruments and equipment. If the necessary testing facilities are unavailable someone in the region may be able to advise from his own experience (the Papua New Guinea supply unit in Sydney employs such a person). Others who might assist are instrument curators and engineers employed to maintain and repair surgical equipment.

Existing facilities for testing

71. Adequate facilities for testing medicines exist in Australia, Britain, Canada, Cyprus, New Zealand (but certain tests are made at the Australian National Biological Laboratory) and Malaysia.

72. Facilities are inadequate in Malta and Mauritius and in Zambia where there are at present no facilities for testing sera and vaccines, though this will be put right when the new Food and Drug Laboratory in Lusaka is operating. In Singapore only chemical and not biological tests can be made; this handicap is being overcome. In Ghana the Government Chemical and Public Health Reference Laboratory is being extended and in Nigeria a National Drug Quality Control Laboratory will soon be in operation. In the Caribbean the establishment of a regional drug testing centre has been proposed. The facilities in Sri Lanka are being developed.

73. Negligible facilities exist in Botswana, Fiji, Lesotho, Malawi, Papua New Guinea (Australian laboratories are used), Sierra Leone, Swaziland and Tonga. Botswana is able to use facilities in adjacent territories.

Regional and national laboratories

74. Governments should be satisfied that medicines and other medical supplies comply with minimum acceptable standards of quality and performance. Testing by adequately trained and well-motivated staff is essential at both regional and national levels. The expenditure on this safeguard will be wasted unless control is exercised throughout the distribution and dispensing

systems. A working party of experts should be formed in each region to survey existing laboratories and advise on essential additional facilities.

75. A regional laboratory should provide a comprehensive testing and analytical service. It might share existing accommodation and expensive, infrequently-used equipment with other testing laboratories in the region. This regional laboratory should exchange information and collaborate with other regional laboratories and with international organisations.

76. A national laboratory should be equipped to test for identity and signs of degradation, investigate complaints and examine local environment problems. This laboratory might be an additional division of the Government Chemist's laboratory with special responsibility for the testing of medicines.

MEDICINES LEGISLATION

77. Much of the legislation in Commonwealth developing countries is based on out-of-date British legislation which was issued to control the custody of poisons and medicines and supply by retail, on prescription and in hospitals. The number of medicines has grown, toxicity and potency have increased, and there are many more possibilities of errors in manufacture and usage which can seriously harm patients.

78. The World Health Organisation and the European Economic Community have issued advice on the form and content of modern legislation on medicinal products. Control is exercised through statutory licensing of the importation, manufacture, marketing and registration of medicinal products. It applies to the manufacture of the bulk drug, formulation and assembly in suitable, properly labelled containers. It also applies to suitable accommodation, equipment and expert staff. These controls are already applied in most developed countries and in a few developing countries where some manufacturing or packaging is undertaken. Some African and Caribbean countries are revising their legislation and it is most important that other countries should revise theirs. Regional harmonisation should also be considered as a step towards regional contracting and the increase of intra-regional trading.

WHO certification scheme

79. It is unrealistic to expect importing countries to inspect all overseas manufacturers and WHO is organising a 'certification scheme on the quality of pharmaceutical products moving in international commerce'. The competent authority in the exporting country will issue a 'certificate of pharmaceutical products' in accordance with the requirements of the importing country. This certificate will confirm that the manufacturer observes 'good practices in the manufacture and quality control of drugs' and that the products have been authorised to be placed on the market. Similarly, batch certificates will be supplied for individual batches of products covered by a 'certificate of pharmaceutical products'.

80. When this scheme is in operation, the importing country will normally need to carry out confirmatory tests only. However, when medicinal products are bought from countries which cannot qualify to join the WHO scheme more comprehensive testing will be necessary.

REGIONAL REPORTS

81. I have already submitted separate reports on my visits to the various regions. The following paragraphs summarise my findings.

East, Central and Southern Africa

82. I visited Kenya, Malawi, Mauritius, Swaziland, Tanzania and Zambia. In general I have no reason to think that conditions and problems concerning the procurement of medicines in other Commonwealth countries in the region are very different from those I saw during my visits. The routines for placing contracts and store accounting have changed little since independence. Attempts at manufacturing medicines in medical stores are little more than old-fashioned dispensing on a slightly larger scale but with little attempt to check the accuracy of the process and the operatives. However, it was encouraging to see moves towards modernisation in Kenya, Zambia and Malawi and the revision of legislation in Tanzania, Zambia and Mauritius.

83. It is very difficult for a small country to find the resources to set up a sophisticated medicines control laboratory and there are several possibilities which should be examined. Where a Government Chemist's laboratory exists, it might be possible to add another division to the laboratory with special responsibility for the testing of medicines. The WHO certification scheme might be adopted or its requirements might be incorporated in general contract conditions. When the WHO basic tests for the identity and degradation of medicines are available, they might be used at regional or district levels as safeguards for patients against treatment with useless or inefficient medicines.

84. It is encouraging to see the increase in training facilities for para-medical technicians in various health disciplines. The demand for these grades will increase as health care becomes more widely available in rural areas. At the same time there will be an increased demand for professional supervision. The available schools of pharmacy should be encouraged to take students from neighbouring countries. Some standardisation of course content will lead to reciprocal acceptance by the various registration authorities.

85. When more pharmacists become available they should be appointed to the larger hospitals to provide a more efficient service of medicines and to supervise the pharmacy technicians and assistants in the satellite establishments. In this way patients will have more efficient treatment and more quickly become active members of the community.

86. As part of the modernisation of medical stores, store-keepers and ledger clerks should have some introductory training. These grades should also be used in regional stores and in the larger hospitals which supply stores to district hospitals and health centres. As store accounts and procedures are adapted to use on computers, some of the ledger clerks will require training in the use of computer terminals and appreciation of the information available from the computer.

87. The chief pharmacists in the six countries that I have visited have many similar problems concerning the procurement and quality of medicines and their supply to patients, particularly in rural areas. I am sure that it would be beneficial if the chief pharmacists in all the Commonwealth countries in the region could meet occasionally and exchange information on how they are solving common problems.

West Africa

88. While each government wishes to procure its medicines as economically as possible, it should understand that medicines are expensive and must be treated as valuable stores. If patients are to have the proper benefit from their treatment and if doctors are to have confidence in the medicines which they prescribe it is most important to have efficient storage and distribution procedures to ensure that the quality of medicines is maintained at all stages. Each country should review its organisation for the procurement, storage and distribution of medicines and, as quickly as possible, institute a system of pre-packing, particularly for medicine dispensed at health centres and district hospitals.

89. The Commonwealth countries in West Africa might discuss the feasibility of a joint purchasing project for the supply of medicines. Agencies such as UNICEF, ECHO, similar European bodies and the Crown Agents should be asked to tender for the supply of medicines as well as registered manufacturers.

90. The chief pharmacists should meet to summarise their inventories and storage capacities; to study ways of overcoming technical obstacles to achieving standard nomenclature for medicines, specifications and pack-sizes; to plan the fullest use of their joint production capacities; to prepare advice on the storage of medicines in rural areas; and to integrate their transport requirements with those for other supplies such as those that are required for immunization programmes.

91. Doctors, nurses, pharmacists and other health workers from each country should together determine the types of treatment appropriate for health posts and prepare lists of essential medicines. They should consider the possibility of producing a West African medicines formulary.

92. Governments should plan specialist and post-graduate training for pharmacists in collaboration with the Schools of Pharmacy and take advantage of courses such as those organised by WHO in Copenhagen on quality control. The countries will benefit through the increased knowledge of modern techniques, equipment and plant and the exchange of ideas and information.

Bangladesh, India and Sri Lanka

93. Each of these countries has a pharmaceutical industry which relies very much on a few multinational companies. Each country also has a number of small indigenous manufacturers. The former are accustomed to having a quality control system and to being subjected to enforcement machinery set up under modern legislation. The many small manufacturers have not previously worked under such controls and are in the main only interested in quick profits. Each country is revising or instituting legislation to control the quality of medicines and as yet has neither the experience nor expertise that is essential if its industry is to produce efficient products acceptable to countries which wish to import their requirements. Each country should review its inspectorate, should make sure that it has the appropriate disciplines and should see that its staff can meet inspectors from other countries and so bring its standards up to an appropriate level.

94. In the health services, expensively trained doctors are responsible for the procurement of medicines; for this they have not been appropriately trained. The excuse is given that this activity is a useful training in administration and personnel management. This may be so, but it certainly does not mean that medicines are procured, stored and distributed efficiently. It would be far more efficient in the long term to have properly trained and capable pharmacists and make them responsible for the supervision of medicines and staff distributing medicines throughout the health service.

Caribbean

95. In Third World countries there is increasing emphasis on preventive as well as curative health services and greater attention to health care in rural areas. It is important that each country should examine its usage of drugs, medicines and dressings; standardise nomenclature and pack sizes; and organise its purchasing programme to fit in with its various requirements. There is also considerable scope for collaboration and standardisation on a regional basis.

96. National formularies exist in various stages of preparation and it is important that they should be brought into use as soon as possible. The formulary should give guidance on what items are available from government stores, their composition and uses. It might be useful to indicate which items are prescribable and can be supplied without delay and which items could be used by para-medical staff, particularly in rural clinics or outposts with no medical officer at hand.

97. With a widely scattered population of five million people it is not feasible to centralise the manufacture of medicines at one point in the Caribbean region. Equipment and expertise should, however, be fully used and production should be planned on a regional basis. Manufacture should start with active ingredients imported in bulk from reputable pharmaceutical manufacturers. In this context manufacture should, in general, be restricted to formulation – the preparation of

tablets, injections, perfusion solutions, ointments, etc. – and packaging – the bottling or strip packing of tablets imported in bulk. All such manufacture should be carried out under statutory controls. Analytical facilities, both chemical and microbiological, are essential.

98. Much of the current legislation on medicines in Caribbean countries is restricted to the custody and distribution of medicines and poisons. The national legislations are being reviewed and brought up to date. It will be very helpful if provision can be made for the statutory control of pharmaceutical manufacture, as well as distribution, and for the registration of medicinal preparations. I hope that as far as possible this legislation will be harmonised within the region and will lead to a regional code of practice. At the same time bureaucratic machinery should be kept to the minimum.

Pacific

99. Apart from the four large developing countries (Fiji, Papua New Guinea, Tonga and Western Samoa) there is a population of about three and a half million in small units scattered over a very wide area. Each country is organising some form of rural health care within its available resources. There is room for much collaboration over the economic procurement of medical supplies of satisfactory quality.

100. Each country should review the organisation of its medical supply depots and the storage of medicines, particularly those sensitive to heat, humidity and light. Medicines, equipment and ordering procedures should be standardised and as far as possible be identical with those in neighbouring countries. This will help to facilitate ordering and reduce the duplication of products.

101. Large numbers of adequately trained staff are required to ensure that patients are efficiently treated. Training is expensive and the lowest grade of assistant capable of giving adequate service should be used at each level. Graduate pharmacists should be used in advisory and supervisory posts and assistants or diploma pharmacists should be responsible for the day-to-day running of hospital dispensaries and the supervision of auxiliaries who handle medicines.

102. In a region which includes so many small, widely-scattered units there is a good case for one or more peripatetic pharmacists to visit and advise islands which cannot afford or justify full-time appointments.

READING LIST

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SUMMARY OF RECOMMENDATIONS

The recommendations contained in this report are summarised below, and action required at national, regional and inter-regional levels is indicated.

Reorganisation machinery

Existing machinery for the procurement of medical supplies should be reviewed and, where appropriate, reorganised.

National – A national multi-disciplinary committee should be set up in each country to deal with the procurement of medical supplies.

Regional – A regional committee should be set up to deal with regional contracting and other forms of regional co-operation, including planning for a pharmaceutical industry and the development of indigenous medicinal resources. A working party of experts should advise on testing laboratory facilities in the region.

Inter-regional – Regional committees should liaise with similar committees in other regions, and with international organisations.

Procurement of medical supplies

Economic procurement of medical supplies should be based on a combination of large scale purchases and an efficient distribution system.

National – Each country should have a medical formulary indicating the medicines available through the health service, the authorisations required for the prescription of specified medicines and the standardised nomenclature. Generic medicines should be preferred to the corresponding proprietary products. Medicines should be supplied to patients in standard quantities, pre-packed in suitable labelled containers. Medical supplies should be stored and transported in conditions which ensure their efficacy and security.

Regional – Where practicable, medical supplies should be bought on a regional scale. A catalogue of all medical supplies is essential for any scheme of regional procurement. Standardised nomenclature and a common system of packaging and labelling are also required.

Inter-regional – Exchange of information with other regions on regional procurement is desirable.

Pharmacists and other staff

Economy in the use of medicines requires that they are properly stored, distributed and dispensed by suitably-trained staff at various levels.

National – Clerical and store staff should be adequately trained. Health auxiliaries should be specially trained to use the medicines essential for primary health care posts. Diploma pharmacists (pharmacy technicians) are needed for dispensaries in small hospitals, some health centres, and manufacturing and supply units; they should also supervise the handling of medicines by health auxiliaries. Graduate pharmacists should provide expert knowledge, advice and supervision in central and provincial health departments, larger hospitals, pharmacy teaching institutions, and manufacturing and supply units. Periodic refresher courses are desirable.

Regional – The training of graduate and diploma pharmacists should be on a regional basis, rather than each country attempting to set up its own training units. Graduate pharmacists are required for regional contracting and supply units, and for the registration of medicines and the inspection of pharmaceutical establishments. A group of consultants, preferably recruited from within the region, should be formed to advise countries on all aspects of medical supplies. Arrangements should be made for peripatetic pharmacists from larger countries to visit small countries lacking professional staff, to provide advice and training.

Inter-regional – Co-operation between regions in the training of pharmacists and the exchange of staff would be beneficial.

Manufacture of medicines

National self-sufficiency in the production of medicines would be difficult to bring about, but there are benefits to be gained through regional co-operation.

National – Any decision to develop a pharmaceutical industry should be preceded by careful investigation, and be based on the required economic and technical resources.

Regional – Manufacture of selected pharmaceutical products on a regional scale should bring economies. Advice from appropriate international organisations (e.g. WHO, UNIDO) is desirable. The use of indigenous plants and traditional medicines in the region should be investigated.

Inter-regional – Liaison with other regions on the manufacture of medicines should be maintained. Information on traditional medicines should be shared.

Quality of medical supplies

Medical supplies should conform to minimum acceptable standards. With the introduction of potent and selective drugs the correct choice of formulation and the control of quality are essential.

National – National laboratories should be able to test for the identity and gross degradation of medicines.

Regional – As far as possible, sources of supply and standards of medical supplies should be agreed regionally. A regional laboratory providing a comprehensive testing and analytical service is essential. A working party in each region should survey existing laboratory facilities and advise on how regional testing might be developed.

Inter-regional – Regional testing laboratories should exchange information and collaborate with each other and with appropriate international organisations.

Medicines legislation

The increased number, toxicity and potency of medicines call for appropriate legislative safeguards.

National – The manufacture, importation, storage, distribution and quality of medical supplies in both the public and private sectors should be controlled through modern legislation and a medicines inspectorate.

Regional – The regional harmonisation of medicines legislation should be considered.

CMC (77) I/A6

REVIEW OF ACTION TAKEN FOLLOWING THE FOURTH COMMONWEALTH MEDICAL CONFERENCE

Abortion Laws in the Commonwealth

Paper prepared by the Commonwealth Secretariat

The three studies on abortion laws and practice in Commonwealth countries, which are contained in the report referred to in this paper*, are submitted in response to the recommendation of the Fourth Commonwealth Medical Conference that the Secretariat should collate information on experience with the medical termination of pregnancy.

2. The first of the studies describes developments in medical technologies for fertility regulation and their legal implications. The second study takes the legal implications further and considers how legislation might be reformed to take account of the new techniques. The third study analyses information obtained from Commonwealth Governments on the current state of abortion law and practice, national evaluations already carried out and proposals for change.

3. The three studies are thus closely inter-related and there has been close collaboration between the authors themselves, between them and the Medical Adviser and the Legal Division of the Secretariat, and between the Secretariat's medical and legal staff. Because the subject is one in which the legal and medical disciplines are equally involved, it was decided that the studies should be presented to the Meeting of Law Ministers in Winnipeg in August 1977 as well as to the Medical Conference.

4. As the preface to the report points out, the views contained in the studies are those of their authors. It would not be appropriate for the Secretariat itself to formulate recommendations on a subject such as this on which attitudes of member countries vary. The Secretariat's object in presenting the report is to provide information which may be of practical assistance to those governments wishing to review their legislation and consider possible changes.

5. Ministers of Health may wish to commend the report to governments on this basis, for joint consideration by Health Ministries and Law Ministries.

8 September 1977

*The report, *Abortion Laws in the Commonwealth,* has been printed separately. It comprises three studies:
(i) 'Developments in medical technologies for fertility regulation and their implications for medical legislation by Mostyn P. Embrey;
(ii) 'The law against family planning – a Commonwealth survey' by Victor Tunkel;
(iii) 'A survey of abortion laws in Commonwealth countries' by Rebecca J. Cook and Bernard M. Dickens.

CMC (77) I/B1

A NOTE FROM THE COMMONWEALTH FOUNDATION

Prepared by the Commonwealth Foundation

Budgetary restrictions alone oblige the Commonwealth Foundation to decline observer status at the Fifth Commonwealth Medical Conference, despite its presence at earlier meetings in Kampala, Port Louis and Colombo. At the same time the Foundation's Trustees, now representing 36 Commonwealth governments, are happy to note that like status was granted at the preparatory meeting in Geneva in May 1977 to one of its principal grantees, the Commonwealth Nurses Federation, and that an eminent Commonwealth Foundation Lecturer, Professor S. R. A. Dodu of Ghana, has been invited to address the Conference as lead speaker.

THE FOUNDATION'S AIMS

2. Under its terms of reference as agreed by Commonwealth Heads of Government in 1965 the Foundation seeks to promote and strengthen professional co-operation within the Commonwealth. In its first eleven years its Trustees have sanctioned grants totalling close on £4 million, thus helping to create ten professional centres; encouraging the growth of pan-Commonwealth professional associations from two to eighteen; and, above all, making it possible for some 3,000 individuals to visit Commonwealth countries other than their own for purposes of study, applied research or attendance at conferences. The Foundation continues to liaise with the Medical Division of the Commonwealth Secretariat.

3. Medicine and the disciplines ancillary to it have always stood high in the Foundation's catalogue of activities. Thus, in making grants in this broad area Trustees are ever mindful of the importance of health care delivery and the team approach to solving health problems. Increasing attention is now paid to closer co-operation between para-medicals and the tackling of 'grass roots' problems as distinct from the higher flights of medicine. While its annual income has not yet topped the £1 million mark the Foundation has pioneered numerous ventures in the medical and para-medical fields. Such activities have to date accounted for some 18 per cent of its grant income.

ACHIEVEMENTS IN THE MEDICAL FIELD

4. A number of the Foundation's achievements to date in the broad medical interest are outlined in the paragraphs which follow.

Pan-Commonwealth activities

5. Continuing support has been provided for the Commonwealth Medical Association, the Commonwealth Nurses Federation and the Commonwealth Society for the Deaf.

Regional co-operation

6. Support has been provided in the *Caribbean* region for projects relating to nursing, mental health, paediatrics and health auxiliaries; in *Africa* to promote rotating meetings of surgeons and physicians in East and West Africa; and in *Australia* to finance a seven-year programme of short-term specialist medical visitations from Australia and New Zealand to other countries in the Pacific region.

Special projects

7. Special projects of the Foundation have included:

(a) the creation of a deaf-teacher training school, of increasing regional significance, in Malawi, has been accompanied by yearly visits by a British ENT surgeon to Blantyre (and latterly to Seychelles);

(b) 'up-country' weekend seminars held over a three-year period in Uganda, Malawi, Solomon Islands and Papua New Guinea for members of the health team in an effort to combat mental and professional isolation;

(c) a seven-year project to enable senior nurses and health officers from the Caribbean to undertake the certificate course in Tropical Community Medicine and Health at the Liverpool School of Tropical Medicine;

(d) a grant to the British Institute of Medical Laboratory Technologists to prepare a Commonwealth-wide survey of training and equipment needs in this field and to promote a series of co-operative regional seminars;

(e) Commonwealth-wide or regional seminars on orthopaedics and orthopaedic technology;

(f) attendance of numerous Commonwealth citizens at medical and para-medical conferences, symposia etc., throughout the Commonwealth;

(g) support for a symposium at Leeds Castle, Kent, in May 1977 on postgraduate medical education.

8. As to (g) above, the increasing reliance of medical postgraduates overseas on the British MRCP examination led to a Foundation-sponsored working group at which the Royal College of Physicians in Britain and like institutions overseas involved in postgraduate medical training met for three days to analyse postgraduate medical education. While recognising the importance of maintaining links with the British tradition of medical education this significant meeting urged, inter alia, the development of a continuing system of postgraduate education more relevant to the health needs of the newer Commonwealth. It also recommended that current examination-oriented types of postgraduate education and of professional accreditation should be replaced by a more in-service type of education of 2—3 years duration.

Publications

9. A four-year award was made to launch the now well-established primary journal 'Tropical Doctor'.

10. The following Foundation 'Occasional Papers', based on previous awards, have been published:

No.	
II	Medical education in Papua New Guinea
VI	Speech and hearing problems in South-East Asia
X	Orthopaedic problems in the developing world
XXIII	Orthopaedic training in developing countries
XXV	Meeting the health needs of our developing countries (Professor S. R. A. Dodu)
XXXIV	Problems of deafness in the newer world
XL	Problems facing the medical laboratory profession within the Commonwealth
XLI	The disabled in developing countries

Commonwealth Foundation Lectureships

11. The following Foundation Lectureships have been awarded:

(a) in orthopaedics, to Professor R. L. Huckstep, formerly Professor at Mulago Hospital, Kampala, to visit East and Central Africa, Mauritius, South and South-East Asia, the Pacific islands, Hong Kong and Australia;

(b) in community health in West Africa, to Professor S. R. A. Dodu of Ghana;

(c) in the training of ancillary health personnel, to Professor N. R. E. Fendall of the Liverpool School of Tropical Medicine, to visit Commonwealth countries in the Pacific, including New Zealand;

(d) in paediatric surgery, to Mr. N. A. Myers of the Royal Children's Hospital, Melbourne, to lecture in India, Bangladesh and Sri Lanka.

Dentistry

12. In view of the relatively low priority given to dentists in governmental and international aid programmes the Foundation has particularly looked out for small projects of value in this field. Thus:

(a) a Foundation Lectureship has recently been awarded for a visit to the Caribbean by Professor G. L. Slack of University of London Dental School, an acknowledged expert in the area of preventive dentistry;

(b) Professor I. Curson, London University Dental School, has recently paid advisory visits to dental schools and colleges in India and Sri Lanka;

(c) regional seminars to the benefit of dental associations in the Commonwealth Caribbean have been financed on problems of the training of dental auxiliaries;

(d) a three-year programme of postgraduate teaching seminars, involving visitations to Hong Kong from Britain, Australia and New Zealand has been successfully completed;

(e) a New Zealand dentist and dental technician have been successfully landed on and removed from Pitcairn Island (with a remarkable record of teeth hauled and dentures fixed);

(f) a grant has recently been made, in conjunction with the International Dental Federation, for the launching of a basic Anglo-French journal of tropical preventive dentistry.

16 September 1977

CMC (77) I/B2

REVIEW OF BRITISH HEALTH AID TO COMMONWEALTH COUNTRIES: 1974–76

Background paper prepared by the British Government

CONTENTS

ANNEXES A–L

REVIEW OF BRITISH HEALTH AID TO COMMONWEALTH COUNTRIES: 1974–76

Background paper prepared by the British Government

INTRODUCTION

Since the Fourth Commonwealth Medical Conference in 1974 Britain has continued to help the development of health services and medical expertise in Commonwealth countries by training medical personnel from the Commonwealth in Britain, supporting research in tropical medicine and responding to requests for assistance from governments. The department mainly concerned with these activities is the Ministry of Overseas Development.* There have been few changes in the principles on which these activities are supported or in the pattern of capital aid and technical co-operation programmes by which they are financed. More importance, however, is now attached to community health, preventive medicine and development in rural areas, and less to large hospitals and specialist curative services.

2. The British aid policy was re-defined in late 1975 with the publication of a White Paper "More Help for the Poorest". The fundamental message behind this new policy document was that British aid should be concentrated increasingly on the poorest countries and the poorest people within those countries.

3. Within the re-defined policy the community health approach implies greater emphasis on the social, economic and environmental determinants of health; on improving nutrition, child health and family planning and providing safe water and proper sanitation; and giving priority to simple systems of primary health care, manned by locally trained and suitable supervised staff, to provide a service accessible to the whole population rather than more sophisticated services which benefit only a minority. The future policy of Britain will be increasingly to concentrate on the furtherance of these objectives in programmes of capital aid and technical co-operation to governments which share them.

Health sector information

4. The information included in this review is fully representative although it is not fully comprehensive. This is because statistical and other relevant information is not maintained by the Ministry of Overseas Development on a sectoral basis. The figures quoted should therefore be read as an indication of magnitude rather than as a precise quantification. Information is presented by calendar year or by the Ministry's financial year which runs from 1 April to 31 March e.g. 1975/76.

GOVERNMENT-TO-GOVERNMENT ASSISTANCE

Supplementation schemes

5. In addition to wholly financing, under bilateral arrangements, staff appointed to posts overseas, the British Government has negotiated schemes to supplement the local salaries of certain posts in developing Commonwealth countries to the level required to attract British staff. As well as additions to the local salary the schemes provide for the payment of, or contributions to, other costs such as passages. The main schemes are the Overseas Service Aid Scheme (OSAS), the analogous Public Service Supplementation Schemes (PSSS) for Ghana and Sierra Leone and the

*Between 1970 and 1974 the Ministry was known as the Overseas Development Administration of the Foreign and Commonwealth Office: it was re-created as the Ministry of Overseas Development in June 1974.

British Expatriates Supplementation Scheme (BESS). Under bilateral OSAS agreements, Britain contributes to the cost of certain British staff employed by Commonwealth Governments. BESS extends this arrangement to employment in suitable non-governmental institutions in the public sector.

6. The original agreements ran until 1971. New agreements valid until 1976 were then negotiated with countries that wanted and needed them. Most of these agreements were then renewed, usually for a further five years but in some cases for shorter periods. Each country's manpower requirements are reviewed annually to ensure that the schemes are used to the country's best advantage.

7. The Commonwealth countries and institutions which Britain assists by supplementing the salaries of British medical staff are listed in Annex A. The list includes Associated States and Dependencies and the Anglo-French Condominium of the New Hebrides. At the end of 1976 there were 330 medical staff (excluding university staff) working in Commonwealth countries with British Government support. Of these, 33 were wholly-financed staff and 297 were covered by supplementation schemes. Details of British medical experts in posts overseas in 1974/76 are given in Annex B.

Technical co-operation and capital aid

8. British technical co-operation is largely provided under regional programmes. The most important in the Commonwealth context are Technical Co-operation in Africa (TCA) and the Columbo Plan. Technical co-operation under these programmes may include advisory or consultant visits, feasibility studies, and long-term appointments for specific development projects; the provision of education and training in Britain (normally for periods from three months to three years) where this is not available locally, and support for projects which contribute to the development of local services, including where necessary the provision of books or small capital grants for buildings or equipment. This assistance is provided under bilateral arrangements between Britain and the country concerned, and specific proposals are considered in accordance with established criteria on the basis of formal requests from governments.

9. Functional technical co-operation is also being provided on an increasing scale by the Ministry of Overseas Development to institutions in Britain like the Liverpool School of Tropical Medicine, the London School of Hygiene and Tropical Medicine and the Institute of Child Health to provide staff and facilities which enable training, research, consultancies and advisory functions to be undertaken for the benefit of developing countries. This type of funding is also used to support seminars, workshops and conferences in Britain and elsewhere by providing funds to meet the travel and living expenses of developing country representatives and in some cases to meet other conference costs.

10. Project (capital) aid for health development projects may be considered in the form of grants or loans within the framework of bilateral programmes of capital aid and in relation to the development priorities agreed with the countries concerned. The Ministry of Overseas Development is directly responsible for project (capital) and and most technical co-operation. There are, however, some forms of technical co-operation where the Ministry works in association with other government departments or through government supported organisations. One such organisation is the British Council, which in 1972 assumed executive responsibility for technical co-operation training in Britain. A summary of health project (capital) aid and technical co-operation for Commonwealth countries in 1974/76 is given in Annex C. The summary includes, under technical co-operation, broad estimates of the costs of British medical experts (Annex B) and of Commonwealth students and trainees in Britain (Annex J).

Commonwealth education co-operation

11. As a result of the First Commonwealth Education Conference in 1959, the British Government allocated funds to promote co-operation in education between the countries of the

Commonwealth. This provision covers, among other things, the British contribution to Commonwealth scholarship and fellowship schemes administered by the Commonwealth Scholarship Commission (paras. 40 and 41) and some of the university co-operation schemes administered by the Inter-University Council (paras. 42—48).

Technical co-operation lectureships in medicine

12. The Inter-University Council supports a number of appointments in the London School of Hygiene and Tropical Medicine, the Liverpool School of Tropical Medicine and the Faculty of Medicine of the University of Edinburgh, so that Britain can retain doctors and medical scientists with specialist knowledge and experience of tropical medicine, who can be available for service in developing countries and who help to maintain the training capability in Britain for the benefit of developing countries (the current numbers of these posts are given in para. 45). The suitability of these specialists, most of whom are of senior lecturer/consultant status, is always considered when appropriate medical vacancies in associated universities overseas are notified to the Council. When lecturers accept an assignment in an associated university overseas, the same terms and conditions normally apply as to any other visitor or appointee.

Universities and medical training establishments

13. Inter-departmental or inter-faculty links are generally considered a very useful form of co-operation and much of the work of the Inter-University Council is directed to this end (para. 43).

14. Links have been developed between the Liverpool School of Tropical Medicine's Department of Community Health and the Banares Hindu University's Community Health Department: this involves exchanges of teaching staff and joint research into primary health care delivery systems. Another two-way link between the All India Institute of Medical Sciences and Department of Paediatric Surgery and the University of Sheffield's Department of Paediatric Surgery has led to research collaboration including surveys into congenital handicap.

Consultancies in health planning

15. In the past a number of Commonwealth governments, particularly in the Caribbean, have sought help from Britain in planning various aspects of their health services. This has been provided through firms of specialist consultants in Britain, and their fees and other expenses have been met from technical co-operation funds.

16. Within the health sector there has been a reduction in the number of requests over the past few years. One particularly successful activity, sponsored by the Commonwealth Secretariat and funded from the Commonwealth Fund for Technical Co-operation, has been the setting up in West and East Africa of management courses in health services and the development of training modules for such courses. This depended for much of its success on UK consultant contributions.

17. Britain has also made arrangements for consultancies relating to the provision of safe water and sanitation: in the Seychelles consultants were employed to advise on sewage disposal and in the Cayman Islands a study on water supplies and sewerage was carried out.

Family planning

18. Britain continues to give high priority to aid for population activities, including family planning, and to help meet the huge upsurge in demands for assistance has made substantial increases in the contributions to the following international organisations concerned with such activities:

	1974	1975	1976
	£	£	£
United Nations Fund for Population Activities	1,000,000	1,800,000	2,000,000
International Planned Parenthood Federation	700,000	1,200,000	1,500,000
OECD Development Centre (Population Programme)	12,500	15,000	–
(The Population Programme per se has now been discontinued and relevant work absorbed by the Development Centre)			
WHO Expanded Programme of Research into Human Reproduction	–	–	100,000

During 1977/78 contributions are expected to amount to £4.64 million (£3 million to UNFPA, £1.5 million to IPPF and £140,000 to WHO).

19. Bilateral assistance provided in response to requests from Commonwealth governments has risen from around £302,000 in the three-year period April 1971 to March 1974 to around £738,000 in the period April 1974 to March 1977. Details are given in Annex D. In addition, expenditure on training, research and other activities based in Britain has totalled about £305,000 in 1974/77 and over the same period some £404,000 has been provided to Oxfam in support of their family health and welfare projects throughout the developing world. Among more recent bilateral agreements Britain is providing a grant of £3,000,000 to India to assist the Indian family planning programme.

20. The Population Bureau, which was established to provide an advisory service both within the Ministry of Overseas Development and by undertaking visits in response to requests from overseas governments, continues to play an active part in the development of ODM-supported population projects in many of the developing countries.

Disaster unit

21. In 1974 the Ministry of Overseas Development set up a Disaster Unit in the Ministry with responsibility for advance planning of supplies and specialised personnel for disaster situations. As part of its contingency planning, the Unit maintains a reserve of 25 reconditioned long-wheel-based Land Rovers, 25 reconditioned 4-ton four-wheel-drive Bedford lorries and a supply of tents, blankets and drugs. The Unit is in close contact with voluntary societies including the British Red Cross and international organisations, particularly the World Health Organisation (WHO) and the UN Disaster Relief Organisation, about health problems in disaster areas and the timely provision of relief. During the three-year period under review the British Government has responded to requests for immediate assistance in disaster situations in 13 Commonwealth countries. Details are given in Annex E.

22. Assistance has also been provided from the British Aid Programme for emergency relief programmes carried out by UN agencies and other bodies. Contributions to this work, which includes operations in Commonwealth countries, totalled around £2,400,000 in the year 1974/75, £3,800,000 in 1975/76 and £4,600,000 in 1976/77.

International co-operation

23. Reference has been made to Britain's contributions from the aid programme to multi-lateral activities in the field of population (para. 18) and in disaster situations (para. 22). These contributions are for the benefit of Commonwealth countries, amongst others, and a similar situation exists with other British contributions either indirect, e.g. to health projects funded by

Development Banks, or direct, e.g. to the Onchocerciasis Control Programme to which Britain has made the following contributions:

1973/74	£106,250
1974/75	£224,083
1975/76	£317,685
1976/77	£475,000

Support is also being given to extra-budgetary programmes of WHO, in addition to the annual British contribution as a member state:

Smallpox eradication campaign	1974/75	£ 75,000
	1975/76	£300,000
	1977/78	£ 50,000 (pledged)
Expanded programme on immunisation	1976/77	Vaccines supplied to the value of £ 48,000
	1977/78 and 1978/79	Vaccines to be supplied to the value of £100,000 each year
Special programme for research and training in tropical diseases (para. 30)	1976/77	£350,000
	1977/78	£400,000

Medical advisers

24. The Minister of Overseas Development is advised on all health matters by a team of Medical and Nursing Advisers and by the Population Bureau (para. 20). These advisers maintain contacts with academic, research and professional organisations and interests in Britain and throughout the world, including international organisations with an interest in health, to ensure that medical policies in the Ministry are related to actual and likely needs. The Chief Medical Adviser in the Ministry of Overseas Development is also the Head of the International Health Division of the Department of Health and Social Security (DHSS). This arrangement ensures that the overseas interests of the British Health authorities are co-ordinated with the priority needs of developing countries and with the activities of WHO and other international bodies in which Britain plays its part. The Ministry's Medical Advisers have continued to visit regions of the Commonwealth to study and discuss particular health problems and advise how they might best be tackled. The staff has been strengthened by the appointment of an Adviser in Nutrition, and it is proposed to increase the medical and nursing input in 1977.

Department of Health and Social Security – International Health Division

25. Britain continues to make a considerable contribution towards the continuing education of health professionals from overseas sponsored by the World Health Organisation and the Council of Europe. The programmes for the majority of fellowships in Britain are arranged and administered by a section of the International Health Division of the Department of Health and Social Security at the request of the European Regional Office of the World Health Organisation and the Council of Europe. Britain is the recipient of the largest number of WHO Fellows from member states of the Organisation who take up studies in the European region. In 1976 out of a total of some 2,200 Fellows studying in the member states of the European region nearly 40 per cent were in Britain.

26. Annex F shows the numbers, and range of medical and para-medical interests, of WHO-sponsored Fellows from Commonwealth countries who took up studies in Britain during 1974/76.

MEDICAL RESEARCH

Tropical medicine

27. Substantial financial support for overseas medical research is provided by the Ministry of Overseas Development and the British Medical Research Council. The Ministry is concerned with diseases and health problems which are particularly associated with developing countries, while the Council is concerned with diseases which have a world-wide impact or which are of particular concern to Britain. As diseases are not constrained by national frontiers, the Ministry and the Council have many common interests and the arrangements for assessing, co-ordinating and funding medical research into tropical diseases at home and overseas are designed to ensure close co-operation between them. This is achieved through the Tropical Medicine Research Board which advises both the Ministry and the Council on the research into tropical diseases which each of them funds. Many projects or research programmes, in particular in the larger establishments overseas, are of interest to both the Ministry and the Council and are jointly financed. Half the membership of the Board is nominated by the Ministry and it is also represented by assessors which include the Chief Medical Adviser. Financial support may be given for research projects in Britain, at Medical Research Council establishments, universities and hospitals, or in the developing countries themselves. Wherever the work is based, this support is directed to providing the research staff, equipment or other items essential to the project. Projects most acceptable to the Ministry are those likely to have a significant effect on the health of developing countries' communities in a foreseeable time scale.

28. Since 1971 there has been a growing awareness of the need to move away from the old style of support for research by expatriate units in independent overseas countries towards a system of close collaboration between British and Commonwealth universities and, where they exist, Commonwealth Medical Research Councils. One example of the new style of collaboration is in The Gambia, where an agreement exists between the British Medical Research Council and the Gambia Government on the running of the Council laboratories in The Gambia. These laboratories, staffed by expatriate and local staff, are financed jointly by the Council and the Ministry and the agreement allows for work both on problems of fundamental medical interest and those of special concern to The Gambia.

29. In recent years it has been realised that research into tropical medicine will be hampered unless career opportunities are improved for scientists wishing to work in the field of tropical medicine research both in the UK and in developing countries. The Tropical Medicine Research Board is, therefore, in the process of creating a small cadre of well-trained research scientists in the UK for deployment overseas on problems in the tropical medicine field.

30. The UNDP/WHO Special Programme for Research and Training in Tropical Diseases has been accepted as of great importance by the Council and the Ministry, and a UK Committee has been set up by the TMRB to advise on how it might best contribute to the Programme and to establish good liaison and communication between tropical medical research workers in the UK and members of the WHO Programme's Scientific Working Groups. Members of the Council's scientific staff have been seconded to WHO and it is hoped that this will continue in the future. The Programme recognises the socio-economic importance of the six major tropical diseases – malaria, schistosomiasis, filariasis (including onchocerciasis), trypanosomiasis, leishmaniasis and leprosy – and Britain, in addition to its scientific input, is making and intends to continue to make significant financial contributions from the aid programme. In 1977, the first year of effective activity, these contributions amount to £500,000, representing about 6 per cent of the expected total extra-budgetary contributions for that year.

31. Since 1974 the total expenditure on tropical medicine through the Council, i.e. schemes administered by the Council but partially funded by the Ministry, is £7,002,000. Of this, £2,103,000 came from the Ministry and £4,899,000 from the Council, broadly as follows:-

1973/74	*Council*	*Ministry**
Tropical communicable diseases	1,161,610	330,270
Epidemiology of tropical diseases	151,800	71,950
Tropical nutrition	36,060	18,030
	1,349,470	420,250
1974/75		
Tropical communicable diseases	1,344,090	363,055
Epidemiology of tropical diseases	147,630	69,580
Tropical nutrition	57,880	28,940
	1,549,600	461,575
1975/76		
Tropical communicable diseases	1,610,800	413,720
Epidemiology of tropical diseases	242,510	112,300
Tropical nutrition	43,840	21,920
	1,897,150	547,940
1976/77		
Tropical communicable diseases	1,824,880	504,180
Epidemiology of tropical diseases	323,240	140,175
Tropical nutrition	57,780	28,890
	2,205,900	673,245

*These figures represent part of the total expenditure by the Ministry on medical research projects which was:

1973/74	617,000
1974/75	658,000
1975/76	769,000
1976/77	997,000

32. Throughout this wide range of research, emphasis is laid on preventive measures and the development of cheap, simple methods of treatment with the objective of achieving the highest possible level of community health. A good example of research which is thus oriented is the development of simple, rugged scientific instruments which are capable of carrying out accurate laboratory tests without depending on external power supplies or regular maintenance. Such instruments are being developed at the Clinical Research Centre in the UK and are being tested under field conditions at the MRC Laboratories in The Gambia. Another important example of community-based research is the case finding studies being carried out in Kenya by the MRC Tuberculosis and Chest Diseases Unit. In collaboration with the East African Tuberculosis Investigation Centre, the Unit has been using African staff, with no special qualifications, to obtain from tribal elders the names of their subjects aged 6 years or more with established chest symptoms suggestive of tuberculosis, proceeding then to obtain sputum specimens from them for smear and culture examination. Applied work of this nature is, however, dependent upon basic laboratory studies which are mainly carried out in the UK, where studies of many tropical diseases such as malaria, schistosomiasis, onchocerciasis and leprosy are supported by the Council and the Ministry. Details of all the medical research projects carried out in Commonwealth countries and funded by the Ministry during 1974/75–1976/77, including those financed jointly with the Medical Research Council, are given in Annex G.

33. In assisting medical research the British Government seeks to increase the numbers of trained medical research workers in the developing countries themselves. Some overseas research projects contain a specific training element or are designed to be continued by local staff. Commonwealth Tropical Medicine Research Awards are offered to Commonwealth graduates to enable them to come to Britain for research training. The total cost of these awards in the period 1974/76 was £45,400.

34. The Ministry of Overseas Development also funds research into problems related to both human and animal trypanosomiasis. It is advised on research proposals by a group of specialists who form the Trypanosomiasis Panel, which works in liaison with the Tropical Medicine Research Board (para. 27).

Appropriate technology

35. Although in the past there has been virtually no aid programme expenditure on research projects aimed at studying applications of appropriate technology in the field of health, the Ministry of Overseas Development is ready to consider any proposals which might be made; for example, funds have recently been made available to assist in the development of problem-orientated flow charts designed to teach paramedical workers the simpler diagnostic skills in the context of village clinics. Another research project which is being funded is aimed at developing simple and more reliable technology in the refrigeration of vaccines, extending reliable cold chains.

Bureau of Hygiene and Tropical Diseases

36. The Bureau of Hygiene and Tropical Diseases was established in 1908 primarily to collect and publish information on sleeping sickness. The scope of its work has broadened considerably and for over 50 years the Bureau has been responsible for the monthly publication of the Tropical Diseases Bulletin and Abstracts on Hygiene. For most of this period Dominion and Colonial – and more recently Commonwealth – governments gave generous financial support to the Bureau. Difficult and changing conditions have led certain governments to withdraw their support and the grants from Commonwealth countries now amount to only 4 per cent of the Bureau's income. A grant from the British Government (£70,000 in 1976) comprises 52 per cent of its income and the remaining 44 per cent is derived from the worldwide sale of its publications.

37. Sales of the Tropical Diseases Bulletin dropped by 7 per cent and of Abstracts on Hygiene by 10 per cent between 1973 and 1976. At the end of 1977 there will be a further fall in sales of the Tropical Diseases Bulletin on completion of the special 3-year project financed by the Commonwealth Foundation to supply information through the medium of this publication to the more remote areas and institutions unable to meet the cost of an annual subscription. Because of these losses of revenue and the continuing large rises in production costs, the subscription for the Tropical Diseases Bulletin will be raised to £16 per year and for Abstracts on Hygiene to £24 per year from January 1978. It is hoped that Commonwealth governments may find it possible to encourage new subscriptions to these journals and to supply the means whereby they may again be available in health departments, universities, hospitals and research institutions to which they were formerly sent. Increases in the circulation of these useful publications as a result of such measures would help to keep price rises to a minimum.

PUBLICLY FINANCED BODIES

The British Council

38. The British Council was established to promote a wider knowledge of Britain and of the English language abroad, and to develop cultural relations between Britain and other countries. It operates a number of schemes which benefit the developing countries, some of which are funded by the Ministry of Overseas Development. The main schemes and services relevant to the health aid programme which the British Council administers are:

British Council Scholarships and Bursaries
University Interchange
Visits to Britain
Specialist Tours
Specialist Courses
Schemes administered for technical co-operation training
Overseas Students' Fees Award Scheme and its successor the Fee Support Scheme
Administrative services in Britain for overseas visitors and students
Information services

39. Details of these schemes and services and statistics of British Council Visitors, Bursars, Scholars and Technical Co-operation Training Fellows arriving in Britain in 1974/75, 1975/76 and 1976/77 are given in Annexes H, I and J.

Commonwealth Scholarship Commission

40. Awards in medicine, surgery and dentistry under the Commonwealth Scholarship and Fellowship Plan are outlined below; details of arrivals in Britain under the Plan in the calendar years 1974, 1975 and 1976 are given in Annex K.

(i) Commonwealth Medical Scholarships (averaging 50 at any one time), for one to three years, for medical or dental graduates of high intellectual promise, mostly with the aim of preparing for higher degrees or professional diplomas.

(ii) Commonwealth Medical Fellowships (up to 60 a year), for 12 months, for clinical, medical, and dental teachers who have already obtained a postgraduate qualification but require an integrated course of study or training to increase their value to their own countries. Research workers, medically qualified teachers in basic medical sciences and medical administrators are also eligible.

(iii) Commonwealth Senior Medical Fellowships (up to 15 a year) for periods of three months, for Deans, Principals and professional heads of department of suitable seniority to enable them to acquaint themselves with the facilities available in Britain for the intensive training of their junior staff who have obtained higher degrees or professional qualifications.

41. Commonwealth Visiting Professorships, for one academic year, are awarded to persons of established reputation and achievement, by invitation from the Commission. A total of up to five awards are normally available each year.

The Inter-University Council for Higher Education Overseas (IUC)

42. The Inter-University Council for Higher Education Overseas was established in 1946 by British universities, at the request of the British Government, to advance higher education in developing countries and encourage co-operation between universities in those countries and in Britain. In 1970 the IUC became a corporate independent body and entered into a formal agreement with the Ministry of Overseas Development which provides that all British help to universities with which the IUC is concerned should, as far as possible, be co-ordinated by the IUC. It is currently associated with 41 universities overseas, of which 19 have medical faculties already and several others are planning to establish them before long. The IUC is almost wholly funded by a grant-in-aid from the Ministry which seeks IUC advice and help on a range of financial and technical co-operation for the universities with which the IUC is associated.

43. The IUC's schemes of co-operation include the support of inter-departmental and inter-faculty links, the recruitment of staff, arrangements for short-term visits and the training of overseas staff both locally and in the UK; in recent years increasing emphasis has been placed on such staff development. Between 1974 and 1976, 17 medical links were in operation covering various pre-clinical and clinical subjects, dentistry or pharmacy. The links varied in size and also in the nature and degree of activity. Normally they involved a two-way interchange of personnel with emphasis on strengthening the teaching capability overseas and on staff development.

44. Staff for 45 medical posts were recruited over the period 1975/76. Various schemes were applied to facilitate such recruitment. For example, 4 medical personnel received special financial awards in view of their seniority and 6 grants were made to institutions in the UK to enable them to release staff on secondment. Other schemes were also used to help offset some of the difficulties experienced by expatriate staff in returning to appointments at home after service abroad. Four Resettlement Fellowships, for example, were awarded to medical faculty personnel during the period 1974/76 and others benefited from grants to enable them to return to the UK for interview.

45. Twenty-eight appointments have been supported under the Technical Co-operation Lectureship Scheme in Medicine (para. 12); 14 at the Liverpool School of Tropical Medicine, 13 at the London School of Hygiene and Tropical Medicine and 1 at the University of Edinburgh. Apart from the overseas work carried out by the Technical Co-operation Lecturers themselves, the Scheme enables other members of the staff of the Schools to be released for varying periods of time overseas and also allows a greater intake of overseas students into the Schools for post-graduate training.

46. Because of the difficulty of long-term recruitment more emphasis has been given in recent years to short-term overseas assignments of up to four months for teaching, clinical work or examining. Two hundred and nine short-term visits in medicine were arranged over the period 1975 to the early part of 1977.

47. Over the period 1974/76, 6 awards were made to medical faculty staff for further experience in the UK and 28 awards were made to technicians in medical schools for special job-related training, other than those arranged under link programmes.

48. The IUC has also helped to strengthen medical school libraries by gifts of back-runs of periodicals. Some grants of equipment have also been made, for example, to the University of Dar es Salaam for Pharmacy.

British Volunteer Programme

49. The British Volunteer Programme is operated in association with the Ministry of Overseas Development by the following voluntary societies: the Catholic Institute for International Relations, International Voluntary Service, the United Nations Association International Service and Voluntary Service Overseas. The Ministry contributes 80 per cent of the costs incurred by the societies in recruiting, training and sending qualified volunteers overseas in response to requests from developing countries throughout the world (90 per cent for language training exceeding 3 weeks). The balance is provided by the societies, with support from bodies such as OXFAM, Christian Aid and the Freedom from Hunger Campaign. The volunteers are thus not sponsored by the British Government but by the society that recruits and remains responsible for them. Commonwealth governments are normally expected to meet local costs for accomodation, board and pocket money. Approximately 80 medical volunteers are at present serving in Commonwealth countries. They are mainly nurses, physiotherapists and radiographers, but include some doctors and dentists. Details of recruitment for the period 1974/76 are given in Annex L.

50. Support is being given by the Ministry of Overseas Development to provide 50 per cent of the cost of rural health projects run by British voluntary agencies like OXFAM and Christian Aid. This support is provided under the '£ for £ scheme' whereby the Ministry agrees to match the funds provided by the voluntary agency. So far 18 health projects have been co-financed under this scheme at a total cost to the aid programme of over £½ million. The projects are concentrated mainly in Africa and Asia and many are based in Commonwealth countries.

EVALUATION

51. The majority of health sector projects are, on completion, evaluated by the team of Medical Advisers within the Ministry of Overseas Development (para. 24) together, in appropriate cases, with the Ministry's regional Development Division and any others concerned. The results of medical research projects are considered by the Medical Advisers and by the Tropical Medicine Research Board of the Medical Research Council (para. 27) which advises the Ministry on such projects. The provision of technical co-operation personnel and the provision of training in Britain are evaluated in the context of manpower reviews which are carried out by the Ministry.

25 October 1977

ANNEX A

AGREEMENT UNDER THE OVERSEAS SERVICE AID SCHEME (OSAS) THE PUBLIC SERVICE SUPPLEMENTATION SCHEMES (PSSS) AND THE BRITISH EXPATRIATES SUPPLEMENTATION SCHEME (BESS)

1. Britain has renewed OSAS agreements until March 1981 with the following countries:

Africa

Botswana
East African Community
The Gambia
Kenya
Lesotho
Malawi
Swaziland
Zambia

Caribbean and South Atlantic

Anguilla
Antigua
Barbados
Belize
British Virgin Islands
Cayman Islands
Dominica
Falkland Islands
Guyana
Grenada
Jamaica
Montserrat
St Helena
St Lucia
St Kitts
St Vincent
Turks and Caicos Islands

Indian Ocean and Mediterranean

Mauritius
Seychelles
Gibraltar

Pacific, South Asia and Far East

British Solomon Islands Protectorate
Gilberts
Fiji
New Hebrides (The Anglo-French condominium of)
Tonga
Tuvalu
Malaysia (Sabah and Sarawak)

2. The Public Service Supplementation Schemes (PSSS) for Ghana and Sierra Leone run to March 1981.

3. The Technical Co-operation arrangement with Nigeria runs to March 1978.

4. Britain has BESS agreements until March 1981 providing assistance for medical personnel with the following institutions:

Kenya Mission Hospitals
Sierra Leone Mission Hospitals

BESS agreements providing assistance for a range of categories, including medical, have been made until March 1981 for:

University of Dar es Salaam
University of Nairobi
Zambia University

ANNEX B

BRITISH MEDICAL EXPERTS IN POST IN COMMONWEALTH COUNTRIES ON 31 DECEMBER 1974, 75 AND 76

Including those covered by Supplementation Schemes and other Technical Co-operation arrangements

Country	*Year*	*Admin*	*Doctors and specialists*	*Auxiliaries*	*Nurses*	*Dental*	*Total*
Anguilla	1974	1	2	–	–	1	4
	1975	–	–	–	–	1	1
	1976	–	1	–	–	1	2
Bangladesh	1974	1	–	–	–	–	1
	1975	–	–	–	–	–	–
	1976	–	–	–	–	–	–
Barbados	1974	2	2	1	–	–	5
	1975	2	–	–	–	–	2
	1976	1	–	–	–	–	1
Belize	1974	2	7	–	–	–	9
	1975	2	3	–	–	–	5
	1976	2	5	–	–	–	7
Botswana	1974	–	6	1	–	1	8
	1975	–	9	1	–	1	11
	1976	–	7	1	–	1	9
British Virgin Islands	1974	2	–	–	–	1	3
	1975	1	2	–	–	1	4
	1976	–	1	–	–	1	2
Cayman Islands	1974	–	5	–	–	–	5
	1975	–	6	–	–	–	6
	1976	–	7	–	–	–	7
Dominica	1974	–	2	–	–	–	2
	1975	–	1	–	–	–	1
	1976	–	–	–	–	–	–
Falkland Islands	1974	1	2	–	4	1	8
	1975	–	3	–	3	1	7
	1976	–	3	–	3	1	7
Fiji	1974	1	10	5	–	–	16
	1975	1	5	2	–	–	8
	1976	1	2	2	–	–	5
The Gambia	1974	–	3	1	–	1	5
	1975	1	4	1	–	–	6
	1976	1	4	1	–	–	6
Ghana	1974	–	2	–	–	–	2
	1975	–	1	–	–	–	1
	1976	–	–	–	–	–	–
Gibraltar	1974	–	4	1	1	–	6
	1975	–	3	1	1	–	5
	1976	–	4	–	–	–	4
Gilbert & Ellice Islands (now Gilbert Islands and Tuvalu)	1974	–	4	1	–	–	5
	1975	–	3	1	–	–	4
	1976	–	4	1	1	–	6

Country	*Year*	*Admin*	*Doctors and specialists*	*Auxiliaries*	*Nurses*	*Dental*	*Total*
Grenada	1974	–	1	–	–	–	1
	1975	–	2	–	–	–	2
	1976	–	2	–	–	–	2
Guyana	1974	1	4	–	–	–	5
	1975	1	1	–	–	–	2
	1976	1	–	–	–	–	1
India	1974	–	–	2	–	–	2
	1975	–	–	–	–	–	–
	1976	–	–	–	–	–	–
Jamaica	1974	–	1	–	–	2	3
	1975	–	2	–	–	1	3
	1976	–	1	–	–	1	2
Kenya	1974	2	15	4	20	–	41
	1975	3	14	1	18	–	36
	1976	2	11	1	11	–	25
Lesotho	1974	–	4	–	–	1	5
	1975	–	2	–	–	1	3
	1976	–	3	–	–	–	3
Malawi	1974	2	9	4	4	1	20
	1975	2	4	2	4	–	12
	1976	5	7	2	1	–	15
Malaysia	1974	1	4	–	2	–	7
	1975	1	4	–	1	–	6
	1976	–	3	–	–	–	3
Mauritius	1974	1	2	–	–	–	3
	1975	1	2	–	–	–	3
	1976	1	2	–	–	–	3
Montserrat	1974	–	2	–	–	–	2
	1975	–	3	–	–	–	3
	1976	1	3	–	–	–	4
The New Hebrides (The Anglo-French Condominium of)	1974	1	6	1	11	–	19
	1975	–	9	2	13	–	24
	1976	–	7	1	9	–	17
Nigeria	1974	2	16	5	10	7	40
	1975	1	8	6	7	3	25
	1976	1	12	8	6	4	31
St. Helena	1974	–	4	–	4	1	9
	1975	–	2	–	4	1	7
	1976	–	3	–	4	1	8
St. Kitts	1974	1	1	–	–	1	3
	1975	1	2	–	–	1	4
	1976	1	3	–	–	1	5
St. Lucia	1974	–	6	–	–	–	6
	1975	–	4	–	–	–	4
	1976	1	3	–	–	1	5
St. Vincent	1974	–	–	2	–	–	2
	1975	1	–	1	–	–	2
	1976	1	–	–	–	–	1

Country	*Year*	*Admin*	*Doctors and specialists*	*Auxiliaries*	*Nurses*	*Dental*	*Total*
Seychelles	1974	1	12	–	–	2	15
	1975	1	14	–	–	1	16
	1976	2	15	–	–	–	17
Sierra Leone	1974	–	1	–	3	–	4
	1975	–	2	–	2	–	4
	1976	–	1	–	1	–	2
Solomon Islands	1974	2	9	3	15	1	30
	1975	2	15	3	15	1	36
	1976	1	15	2	13	1	32
Swaziland	1974	–	1	2	–	–	3
	1975	–	–	1	–	–	1
	1976	–	–	–	–	–	–
Tanzania	1974	–	–	–	–	–	–
	1975	–	–	–	–	–	–
	1976	–	2	–	–	–	2
Trinidad and Tobago	1974	–	–	–	–	–	–
	1975	–	1	–	–	–	1
	1976	–	1	–	–	–	1
Turks and Caicos	1974	–	4	–	–	–	4
	1975	–	3	–	–	–	3
	1976	–	2	–	–	–	2
Uganda	1974	–	–	2	1	–	3
	1975	–	–	–	1	–	1
	1976	–	–	–	–	–	–
Zambia	1974	8	25	55	7	–	95
	1975	4	32	40	8	2	86
	1976	6	33	37	14	3	93
GRAND TOTALS	1974	32	176	90	82	21	401
	1975	25	166	62	77	15	345
	1976	28	167	56	63	16	330

ANNEX C

PROJECT (CAPITAL) AID AND TECHNICAL CO-OPERATION FOR HEALTH PROJECTS FOR COMMONWEALTH COUNTRIES 1974/76 IN £'000

	Country	*Year*	*Capital aid*	*Technical co-operation*	*Total*
AFRICA	Botswana	1974	32	33	65
		1975	17	50	67
		1976	2	51	53
	The Gambia	1974	5	17	22
		1975	50	32	82
		1976	57	38	95
	Ghana	1974	–	55	55
		1975	–	47	47
		1976	–	57	57
	Kenya	1974	–	192	192
		1975	–	164	164
		1976	187	232	419
	Lesotho	1974	216	19	235
		1975	292	52	344
		1976	292	26	318
	Malawi	1974	112	69	181
		1975	267	81	348
		1976	542	122	664
	Mauritius	1974	–	19	19
		1975	–	35	35
		1976	–	23	23
	Nigeria	1974	–	165	165
		1975	–	128	128
		1976	–	193	193
	Seychelles	1974	558	55	613
		1975	720	84	804
		1976	1,314	117	1,431
	Sierra Leone	1974	–	14	14
		1975	–	19	19
		1976	–	23	23
	Swaziland	1974	51	10	61
		1975	40	43	83
		1976	6	5	11
	Tanzania	1974	–	2	2
		1975	–	7	7
		1976	–	32	32
	Uganda	1974	–	21	21
		1975	–	9	9
		1976	–	3	3
	Zambia	1974	–	316	316
		1975	–	346	346
		1976	–	535	535
	TOTAL AFRICA	1974	974	987	1,961
		1975	1,386	1,097	2,483
		1976	2,400	1,457	3,857

Footnote: In addition a regional – mainly West Africa – £10,000 grant has been made available under Technical Co-operation for the 3 year period 1974/75 – 1976/77 for a modular training course in Management of Educational and Rural Health Services.

	Country	*Year*	*Capital aid*	*Technical co-operation*	*Total*
ASIA	Bangladesh	1974	–	75	75
		1975	–	49	49
		1976	–	176	176
	Hong Kong	1974	–	2	2
		1975	–	–	–
		1976	–	–	–
	India	1974	68	25	93
		1975	–	21	21
		1976	118	2	120
	Malaysia	1974	98	39	137
		1975	257	54	311
		1976	19	64	83
	Singapore	1974	–	3	3
		1975	–	3	3
		1976	–	12	12
	Sri Lanka	1974	173	15	188
		1975	81	14	95
		1976	40	26	66
	Asian	1974	–	–	–
	Institute of	1975	–	–	–
	Technology	1976	37	–	37
		1974	339	159	498
	TOTAL ASIA	1975	338	141	479
		1976	214	280	494
CARIBBEAN AND SOUTH ATLANTIC	Anguilla	1974	16	13	29
		1975	12	4	16
		1976	30	14	44
	Antigua	1974	18	1	19
		1975	125	3	128
		1976	11	45	56
	Barbados	1974	–	22	22
		1975	–	14	14
		1976	–	47	47
	Belize	1974	70	43	113
		1975	144	38	182
		1976	149	70	219
	British	1974	5	10	15
	Virgin Islands	1975	–	17	17
		1976	2	11	13
	Cayman	1974	–	17	68
	Islands	1975	–	26	26
		1976	–	40	40
	Dominica	1974	89	11	100
		1975	73	13	86
		1976	53	9	62
	Falkland	1974	9	26	35
	Islands	1975	8	28	36
		1976	2	40	42

	Country	Year	Capital aid	Technical co-operation	Total
CARIBBEAN AND SOUTH ATLANTIC *—continued*	Grenada	1974	—	3	3
		1975	—	8	8
		1976	—	11	11
	Guyana	1974	—	22	22
		1975	—	13	13
		1976	—	8	8
	Jamaica	1974	—	25	25
		1975	—	20	20
		1976	—	17	17
	Montserrat	1974	32	7	39
		1975	428	12	440
		1976	191	23	214
	St Helena	1974	1	30	31
		1975	15	28	43
		1976	62	47	109
	St Kitts	1974	6	10	16
		1975	11	17	28
		1976	40	29	69
	St Lucia	1974	—	21	21
		1975	—	16	16
		1976	23	42	65
	St Vincent	1974	11	7	18
		1975	52	10	62
		1976	37	6	43
	Trinidad and Tobago	1974	—	4	4
		1975	—	44	44
		1976	—	8	8
	Turks and Caicos	1974	3	15	18
		1975	—	13	13
		1976	136	13	149
	Caribbean Regional	1974	—	—	—
		1975	—	—	—
		1976	—	8	8
	TOTAL CARIBBEAN	1974	311	287	598
		1975	868	324	1,192
		1976	736	488	1,224
MEDITER-RANEAN	Cyprus	1974	—	2	2
		1975	—	1	1
		1976	—	8	8
	Gibraltar	1974	8	20	28
		1975	—	22	22
		1976	116	34	150
	Malta	1974	—	1	1
		1975	—	—	—
		1976	—	—	—
	TOTAL MEDITERRANEAN	1974	8	23	31
		1975	—	23	23
		1976	116	42	158

	Country	*Year*	*Capital aid*	*Technical co-operation*	*Total*
PACIFIC	Fiji	1974	687	64	751
		1975	578	39	617
		1976	19	40	59
	Gilbert & Ellice Islands	1974	120	35	155
	(now Gilbert Islands and	1975	187	24	211
	Tuvalu)	1976	144	43	187
	The New Hebrides	1974	337	63	400
	(the Anglo-French	1975	68	100	168
	Condominium of)	1976	81	98	179
	Solomon Islands	1974	204	99	303
		1975	614	292	906
		1976	1,178	182	1,360
	Tonga	1974	–	–	–
		1975	–	–	–
		1976	49	5	54
	Western Samoa	1974	18	–	18
		1975	69	–	69
		1976	33	5	38
	TOTAL PACIFIC	1974	1,366	261	1,627
		1975	1,516	455	1,971
		1976	1,504	373	1,877
	GRAND TOTAL	1974	2,998	1,717	4,715
		1975	4,108	2,040	6,148
		1976	4,970	2,640	7,610

ANNEX D

BILATERAL ASSISTANCE FOR POPULATION AND FAMILY PLANNING ACTIVITIES – 1974/75 TO 1976/77

Country	£ *1974/75*	£ *1975/76*	£ *1976/77*
Anguilla	–	–	2,800
Bangladesh	40,000	–	100,000
Botswana	6,000	6,000	–
Dominica	14,000	8,000	–
Fiji	11,000	7,000	11,000
Ghana	21,500	7,000	26,000
Gilbert & Ellice Islands (now Gilbert Islands and Tuvalu)	18,700	7,800	6,500
Jamaica	11,000	4,000	4,000
Kenya	1,500	1,000	35,000
Lesotho	–	31,500	–
Malawi	–	28,000	22,000
Mauritius	5,000	11,500	–
The New Hebrides (the Anglo-French Condominium of)	–	4,000	–
St. Lucia	–	–	12,000
St. Vincent	–	1,700	–
Seychelles	4,500	15,300	12,000
Solomon Islands	–	148,000	–
Sri Lanka	–	–	4,500
Swaziland	–	36,700	2,900
Tanzania	–	–	9,300
Tonga	–	–	4,300
Trinidad and Tobago	–	35,000	–
TOTAL	133,200	352,500	252,300

ANNEX E

IMMEDIATE RELIEF RESPONSES TO DISASTER SITUATIONS: 1974–76

			£
1.	BANGLADESH (Floods)	August 1974	43,500
2.	CYPRUS (Civil War)	August 1974	8,900
3.	KENYA (Cholera epidemic)	December 1974	21,000
4.	WESTERN SAMOA (Floods)	December 1974	200
5.	FIJI (Hurricane)	February 1975	1,500
6.	MAURITIUS (Cyclone)	February 1975	23,000
7.	LESOTHO (Epidemic of plague and polio)	April 1975	3,900
8.	SIERRA LEONE (Hurricane)	June 1975	200
9.	BANGLADESH (Refugee camps)	June 1975	20,100
10.	HONG KONG (Vietnamese refugees)	June 1975	16,500
11.	INDIA (Floods)	September 1975	20,000
12.	BANGLADESH (Refugee camps)	September 1975	16,000
13.	THE GAMBIA (Floods)	August 1976	125

ANNEX F

WORLD HEALTH ORGANIZATION SPONSORED FELLOWS FROM COMMONWEALTH COUNTRIES RECEIVED IN BRITAIN 1974–76

Country	*Year*	*Public health admin.*	*Environmental health*	*Nursing*	*Maternal and child health*	*Other health services*	*Communicable diseases*	*Clinical medicine*	*Basic sciences and education*	*Total*
Australia	1974	1	–	–	–	–	–	–	–	1
	1975	–	–	–	–	2	–	1	1	4
	1976	–	1	–	1	1	–	–	–	3
Barbados	1974	–	–	–	–	–	–	–	–	–
	1975	–	1	1	–	–	–	–	–	2
	1976	–	–	–	–	–	–	–	–	–
Botswana	1974	–	–	–	–	–	–	–	–	–
	1975	–	–	–	–	–	–	1	–	1
	1976	–	–	–	–	–	–	–	–	–
Canada	1974	3	–	3	–	1	–	1	–	8
	1975	–	–	2	–	6	–	1	–	9
	1976	–	–	2	3	–	–	–	1	6
Cyprus	1974	1	1	2	–	2	–	1	–	7
	1975	1	2	6	–	1	–	2	–	12
	1976	–	–	6	–	7	–	1	–	14
Fiji	1974	–	–	–	–	–	–	1	–	1
	1975	–	1	–	–	–	–	–	–	1
	1976	–	–	–	–	–	–	–	–	–
The Gambia	1974	–	–	–	–	–	–	1	–	1
	1975	–	–	–	–	–	–	–	–	–
	1976	–	–	–	–	–	–	1	–	1
Ghana	1974	–	–	1	–	2	–	–	–	3
	1975	–	1	–	–	4	–	–	–	5
	1976	–	–	–	–	–	–	–	–	–
Guyana	1974	–	–	–	–	–	–	–	–	–
	1975	–	–	–	–	–	–	–	–	–
	1976	–	–	–	–	1	–	–	–	1

Country	*Year*	*Public health admin.*	*Environmental health*	*Nursing*	*Maternal and child health*	*Other health services*	*Communicable diseases*	*Clinical medicine*	*Basic sciences and education*	*Total*
Hong Kong	1974	–	–	2	1	–	–	–	–	3
	1975	–	–	2	–	–	–	–	–	2
	1976	–	–	1	1	–	–	1	–	3
India	1974	–	18	4	3	12	1	20	7	65
	1975	1	31	–	15	15	1	15	15	92
	1976	1	40	1	15	22	–	17	3	99
Jamaica	1974	–	–	–	–	–	–	–	–	–
	1975	–	–	–	–	–	–	–	–	–
	1976	–	–	–	–	1	–	–	–	1
Kenya	1974	–	–	–	–	–	–	1	–	1
	1975	–	–	1	–	2	–	–	–	3
	1976	–	–	–	–	–	–	1	–	1
Malawi	1974	–	–	1	–	–	–	–	–	1
	1975	–	–	–	–	1	–	–	–	1
	1976	–	–	1	–	–	–	–	–	1
Malaysia	1974	–	3	–	–	3	–	3	–	9
	1975	–	–	–	–	1	–	2	–	3
	1976	1	1	1	–	–	–	–	1	4
Malta	1974	–	2	–	–	–	–	1	–	3
	1975	–	3	2	–	2	–	2	–	9
	1976	–	–	–	–	–	–	–	1	1
New Zealand	1974	–	1	–	–	1	–	1	–	3
	1975	–	1	1	–	2	–	–	–	4
	1976	1	–	–	–	3	–	–	–	4
Nigeria	1974	–	–	–	–	–	–	1	1	2
	1975	2	1	–	–	3	–	–	–	6
	1976	–	–	1	–	1	–	–	–	2
Papua New Guinea	1974	–	–	–	–	1	–	1	–	2
	1975	–	–	–	–	1	–	1	–	2
	1976	–	–	–	–	1	–	–	–	1

Country	*Year*	*Public health admin.*	*Environmental health*	*Nursing*	*Maternal and child health*	*Other health services*	*Communicable diseases*	*Clinical medicine*	*Basic sciences and education*	
Sierra Leone	1974	–	1	–	–	1	–	1	–	3
	1975	1	–	6	–	1	–	2	–	10
	1976	2	–	–	–	1	–	1	–	4
Singapore	1974	1	2	2	–	3	–	1	2	11
	1975	1	3	1	–	1	–	3	–	9
	1976	–	2	2	–	2	–	2	–	8
Sri Lanka	1974	14	6	–	–	8	–	2	6	36
	1975	3	2	–	–	18	–	2	2	27
	1976	6	3	2	1	19	–	2	3	36
Tanzania	1974	–	–	1	–	1	–	1	–	3
	1975	1	–	–	–	1	–	–	4	6
	1976	3	–	–	–	1	–	–	4	8
Tonga	1974	–	–	–	–		–	–	–	–
	1975	–	–	1	–	–	–	–	–	1
	1976	–	–	–	–	–	–	–	–	–
Trinidad and Tobago	1974	–	–	–	–	1	–	–	–	1
	1975	–	–	–	–	–	–	–	–	–
	1976	–	–	–	–	–	–	–	–	–
Uganda	1974	–	1	–	–	1	–	–	–	2
	1975	1	–	–	–	3	–	–	1	5
	1976	–	–	–	–	–	–	1	–	1
Zambia	1974	–	–	–	–	–	–	–	–	–
	1975	2	–	–	–	2	–	–	1	5
	1976	–	–	–	–	–	–	–	–	–
TOTALS	1974	20	35	16	4	37	1	37	16	166
	1975	13	46	23	15	66	–	32	24	219
	1976	14	47	17	21	60	–	27	13	199

ANNEX G

MEDICAL RESEARCH SCHEMES SUPPORTED BY THE MINISTRY OF OVERSEAS DEVELOPMENT

AFRICA — *Title*	*Expenditure 1974/75–1976/77*
Chemotherapy of human liver cancer and hepatocarcinogenesis, Kenya	17,851
*Dunn Nutrition Unit, Fajara, The Gambia – 50%	80,546
East African Tuberculosis Investigation Centre – six posts financed by the Ministry	143,885
Epidemiology and treatment of Hydatid disease, Turkhana, Kenya	18,556
*Filarial infections at the East African Coast – 50%	12,800
Immunological studies in meningococcal and pneumococcal infections, Ahmadu Bello University, Nigeria	72,830
Immunological studies in meningococcal infections, Ahmadu Bello University, Nigeria	27,421
*Long term study of effect of irrigation schemes on virus infections, Kisumo, Kenya – 80%	227,262
*MRC Laboratories, Fajara, The Gambia – 33%	302,745
Studies of development of skin penetrating nematodes, University of Nssuka, Nigera	4,714
CARIBBEAN AND SOUTH ATLANTIC	
*Biological inter-relationships in the Tristan da Cunha population, University of Newcastle upon Tyne – 50%	1,707
Caribbean Epidemiology Centre (formerly Trinidad Regional Virus Laboratory) – research projects	83,110
*Characterisation of factors involved in glutamine utilisation by kidney and intestine, Jamaica – 50%	3,230
Commonwealth Caribbean Medical Research Council – block grant	8,519
Effect of photocoagulation and diathermy on the course of sickle cell eye disease in Jamaica	3,932
*Epidemiological study of Myocardial Ischaemia, high density lipoprotein, Trinidad – 50%	16,198
*Epidemiology Research Unit, Jamaica – 40%	116,452
Grant for equipment at the Caribbean Epidemiology Centre	51,817
*Human filarias and their vectors in Trinidad – 50%	10,636
Maintenance grant to the secretariat of the Commonwealth Caribbean Medical Research Council	6,479
Schistosomiasis Control Unit, St. Lucia	68,415
*Studies of streptococcal infections and their sequelae, Trinidad – 80%	18,306
Study of arboviruses in bats, Caribbean Epidemiology Centre	8,114
*Taxonomy, ecology and vector potential of the man biting simuliidae in Guyana – 50%	1,640
*Tropical Metabolism Research Unit, Jamaica – 40%	262,787
ASIA	
*Drug trials against leprosy at Sungei Buloh Research Unit, Malaysia – 40%	43,168
Leprosy studies using metabolites with radio labels, India	7,555
*Short course treatment of spinal tuberculosis in Hong Kong, Korea and India – 50%	38,173
UK	
*Abnormal Haemoglobin Unit, Cambridge – 20%	12,093
Action of organic arsenical drugs, University of Edinburgh	8,292
*Arboviruses and other micro-organisms in arthropod and lower vertebrate cell cultures, London School of Hygiene and Tropical Medicine – 25%	2,503

UK—*continued*	*Title*	*Expenditure 1974/75–1976/77*
	Arboviruses epidemiology studies, London School of Hygiene and Tropical Medicine	108,750
	Biology and genetics of anopheline mosquitoes, London School of Hygiene and Tropical Medicine	18,882
	*Chemotherapy of filariasis, Liverpool School of Tropical Medicine – 30%	5,116
	*Chemotherapy of leprosy, St. George's Hospital, London – 50%	27,643
	*Comparison of white-pox viruses with variola and monkeypox, St. Mary's Hospital Medical School – 50%	1,665
	*Culture of malaria parasites, Guy's Hospital Medical School – 50%	3,284
	*Development of statistical methods and services in tropical epidemiology, London School of Hygiene and Tropical Medicine – 30%	5,242
	*Experimental mouse malaria, immunisation and immunological characterisation of chronic infections, University of Edinburgh – 50%	1,067
	HL–A antigens in Burkitt's Lymphoma and associated diseases, Glasgow Royal Infirmary	661
	Host parasite infections in filarial infections, London School of Hygiene and Tropical Medicine	58,835
	*Identification of arthropod blood meals of medical importance, Imperial College of Science and Technology, London – 50%	1,615
	Immuno-depressions associated with malarial infections in mice, University of Edinburgh	19,624
	Immunological aspects of pinform infection, Glasgow University	9,136
	*Investigation into mosquito behaviour, University of Sussex – 50%	67,567
	Long term investigation of infections caused by Schistosoma Haematobium, London School of Hygiene and Tropical Medicine	61,180
	*Monolayer and bilayer studies and their application to mosquito control, Southampton University – 50%	22,277
	Nature and significance of viruses within the small intestine of adults with tropical diarrhoea, London School of Hygiene and Tropical Medicine	13,025
	*Research on the distribution of malignant tumours, Southampton University – 50%	48,659
	Schistosoma Mansoni chemical stimulation in the development of the female reproductive system, University College Cardiff	4,910
	Serodiagnosis of schistosomiasis, London School of Hygiene and Tropical Medicine	15,782
	Serological identification of the sibling species of the Anopheles Gambiae complex, London School of Hygiene and Tropical Medicine	15,012
	*Study of enzyme immuno-assays for parasitic diseases, Nuffield Institute of Comparative Medicine – 50%	5,009
	Ultrastructure and metabolism of filarial larvae, London School of Hygiene and Tropical Medicine	9,702

Note: * Indicates a project financed jointly by the Ministry of Overseas Development and the Medical Research Council. The expenditure shown is the Ministry of Overseas Development contribution; the relation of this to the total expenditure is given by the percentage.

This list excludes several projects, the work on which was carried out in non-Commonwealth countries.

ANNEX H

BRITISH COUNCIL SCHEMES AND SERVICES

Schemes

British Council Schemes with a medical content (including those administered by the Council for the Ministry of Overseas Development) are summarised below:

Scholarships and bursaries. Scholarships are given for postgraduate study in Britain, normally for one academic year; bursaries are given for two to six months, normally excluding fares. Applications are made to the British Council Representative in the candidate's own country.

University interchange. The interchange of university staff and research workers is facilitated by three schemes for which the Council acts as agent in Britain. Indo-British University Collaboration (IBUC) – for agreed long-term collaboration – and the Younger Scientists Exchange Scheme (YSES) – for short study visits – are limited to exchanges between Britain and India and cover travel and subsistence. The Commonwealth University Interchange Scheme (CUIS) offers travel grants to appropriately qualified applicants for study visits from one Commonwealth university to another.

Visits and tours. Professional visits in Britain are arranged for senior members of the medical profession who are invited as guests of the Council, or who are visiting Britain at their own expense. In the reverse direction the Council arranges advisory tours or working visits overseas for medical specialists from Britain.

Specialist courses. The British Council organises several courses annually on current British developments in specific areas of medicine, generally of two or three weeks' duration; details are available from British Council Representatives overseas or from the Council's headquarters.

Technical co-operation training. The Technical Co-operation Training Department (TCTD) administers the Technical Co-operation Training Programme (TCTP) on behalf of the Ministry of Overseas Development (ODM). This programme is a government-to-government scheme to offer less developed countries manpower training opportunities, mainly in Britain but occasionally in other countries (third country training), in the fields of economic and social development.

For each country the number of awards to be offered each year and the broad subjects in which they may be taken up are agreed between the overseas government and the British Embassy or High Commission on behalf of ODM. Thereafter the Council overseas handles the implementation of the programme with TCTD. Training which is available locally is not eligible for inclusion.

The TCTP trains some 7,000 study fellows each year from about 120 countries. For statistics of medical Fellows arriving in 1974/75, 1975/76 and 1976/77 see Annex J.

The Overseas Students Fees Award Scheme and the Fee Support Scheme. The Overseas Students Fees Award Scheme (OSFAS) was introduced in 1968 to offset fee increases for overseas students in Britain. These awards, which covered fees at universities and other institutions in Britain – but excluded maintenance, travel and other costs – were made mainly to advanced or postgraduate students in receipt of scholarships or grants from their own governments. This Scheme is now being phased out but has been replaced by a Fee Support Scheme (FSS) which has the purpose of assisting, on grounds of hardship, selected postgraduate students from developing countries otherwise supported solely from personal or family resources. The FSS, which was introduced with effect from the academic year 1977/78, provides fixed annual grants towards tuition fees at British universities, polytechnics and colleges of further education for up to 3 years starting in 1977 to those students engaged in studies of developmental value at the beginning of the academic year. Like OSFAS, the FSS is financed by the Ministry of Overseas Development and administered by the British Council.

Administrative services. Through its 25 regional offices throughout Britain, as well as its London headquarters, the Council offers reception, accommodation and other services and limited cultural and social facilities to overseas visitors and students visiting Britain under the schemes listed above.

Information services

The Council's Headquarters Medical Department can assist overseas governments and institutions with a wide range of advisory services. It has a Medical Information Service which compiles bibliographies and book lists and answers individual enquiries. It has a medical library which acquires most new British medical books and has runs of 350 periodicals. Medical Information Service also publishes *British Medicine*: a monthly guide to current literature and non-book material; *British Medical Periodicals* 5th edition 1977; *Community Health*: a select list of books, periodicals and non-book materials, 1977. These publications are available from booksellers or from British Council offices.

The Medical Department of the British Council also publishes *British Medical Bulletin.* Each issue of the Bulletin is a symposium of some 15 papers, dealing with an aspect of medical research to which British workers have made important contributions. It is available from booksellers throughout the world, or may be purchased from Headquarters.

The Council has executive responsibility for the Ministry of Overseas Development Low-priced Books scheme by which basic British textbooks are published for sale to students at greatly reduced prices. About 100 medical and related books are at present available through bookshops in most developing countries of the Commonwealth. The Council also operates the Books Presentation Programme by which the Ministry makes presentations of British books and periodicals to medical libraries and other institutions overseas. In countries where there are no suitable commercial arrangements the Council assists institutions to purchase books and periodicals against repayment in local currency.

ANNEX I

BRITISH COUNCIL VISITORS, BURSARS AND SCHOLARS FROM COMMONWEALTH COUNTRIES STUDYING MEDICINE

	1974/75			*1975/76*			*1976/77*			
	Vis	*Burs*	*Schl*	*Vis*	*Burs*	*Schl*	*Vis*	*Burs*	*Schl*	*Total*
Developing Commonwealth										
AFRICA										
Ghana				1			2			3
Kenya	1			2						3
Lesotho	2			1						3
Malawi							1			1
Nigeria	5			1			2			8
Tanzania		1								1
Sierra Leone	3			1						4
Zambia	1									1
CARIBBEAN										
Barbados				1						1
MEDITERRANEAN										
Malta	1		2	1					1	5
SOUTH AND EAST ASIA										
Bangladesh							2			2
Hong Kong				1						1
India	8			10	1		8			27
Malaysia				3			5			8
Singapore	1			1						2
Sri Lanka	1			1			1			3
Developing Commonwealth Total	23	1	2	24	1		21		1	73
Other Commonwealth										
Australia	2			2			1			5
Canada	2	1		2			3			8
New Zealand	2			2			3			7
Other Commonwealth Total	6	1		6			7			20
GRAND TOTALS	29	2	2	30	1		28		1	93

KEY TO MEDICAL GROUPS IN TABLE OF TRAINING AWARDS (ANNEX J)

The principal items included in the various Medical Groups are as follows:

A MEDICAL
Cardiology, chest diseases, dermatology, endocrinology, haematology, medicine, neurology, paediatrics, physical medicine, psychiatry, rehabilitation, tropical medicine, venereal diseases.

B SURGICAL
Cardiac surgery, neurosurgery, obstetrics and gynaecology, ophthalmology, orthopaedics, otolaryngology (ENT), plastic surgery, thoracic surgery, urology, vascular surgery.

C ANAESTHESIA
Anaesthesia.

D RADIOLOGY
Health physics, medical physics, nuclear medicine, radiodiagnosis, radioisotopes (applied to medicine), radiotherapy.

E DENTAL
Dentistry, orthodontics, peridontology.

F BASIC MEDICAL AND CLINICAL SCIENCES
Anatomy, bacteriology (medical), biochemistry (medical), forensic medicine, genetics (medical), helminthology, histology, immuno-chemistry, immunology (medical statistics), mycology (medical), nutrition, pathology, pharmacology, physiology, virology (medical).

G MEDICAL AND HOSPITAL ADMINISTRATION
Epidemiology, family planning, health education, hospital administration, medical education, occupational health, public health.

H NURSING
Midwifery, nursing.

J LABORATORY TECHNOLOGY
Medical laboratory technology.

K SUPPLEMENTARY PROFESSIONS
Chiropody, medical social work, occupational therapy, physiotherapy, psychiatric social work, radiography, speech therapy.

L PHARMACY
Pharmacy.

ANNEX J

MEDICAL TECHNICAL COOPERATION TRAINING AWARDS 1974/75

Group	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*	*Total*
AFRICA												
Botswana								1				1
Ghana	3	2				3	1		2	2	3	16
Kenya	2	2		2		5	3	5	2	2		23
Lesotho	1											1
Malawi	1							1	1	1		4
Mauritius						1	1		2	1		5
Nigeria	2	3	1	1		1	7	8	15	2		40
Seychelles								1				1
Sierra Leone	1											1
Tanzania						1			1			2
Uganda					1	4	1		1	4	2	13
Zambia									3			3
Africa Total	10	7	1	3	1	15	13	16	27	12	5	110
CARIBBEAN												
Antigua							1					1
Barbados	1						1		3			5
Cayman Islands											1	1
Guyana						1		1				2
Jamaica							1					1
Montserrat								1				1
St. Lucia									1			1
Trinidad and Tobago						1	2	1				4
Turks and Caicos								1	1			2
Caribbean Total	1					2	5	4	5		1	18
SOUTH AND EAST ASIA												
Bangladesh				1								1
Hong Kong							2		1			3
India	7	8	2		2	3						22
Malaysia	1				1	4	1	1				8
Singapore				2			2					4
Sri Lanka	6	1	2	3	1		1	4				18
South and East Asia Total	14	9	4	6	4	7	6	5	1			56
MEDITERRANEAN												
Cyprus		1				1		1				3
Malta		1										1
Mediterranean Total		2				1		1				4
GRAND TOTALS	25	18	5	9	5	25	24	26	33	12	6	188

MEDICAL TECHNICAL COOPERATION TRAINING AWARDS 1975/76

Group	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*	*Total*
AFRICA												
Gambia						1			2			3
Ghana		3	1	2	1		3					10
Kenya	6	1		1		2	3	1	1	2		17
Lesotho								1				1
Malawi	3				1		1					5
Mauritius	1						2		6	1		10
Nigeria	2	4			1	3	1	8	7		1	27
Seychelles	2	1						2				5
Sierra Leone							1	2				3
Swaziland										2		2
Tanzania					1	2	1			3		7
Uganda			1							1		2
Zambia								1	1			2
Africa Total	14	9	2	3	4	8	12	15	17	9	1	94
CARIBBEAN												
Barbados				1				1		1		3
Belize								1				1
British Virgin Islands		1										1
Cayman Islands								2				2
Guyana							1					1
Jamaica						1						1
St. Kitts							1					1
Trinidad and Tobago							1	4				5
Turks and Caicos								1				1
Caribbean Total		1		1		1	3	9		1		16
SOUTH AND EAST ASIA												
Bangladesh						1	5				2	8
India	5	5		2		5	1			2		20
Malaysia	5	1	1	2	5	1	3	4	2	1	1	26
Singapore	1		1								1	3
Sri Lanka	4					5	2	2				13
South and East Asia Total	15	6	2	4	5	12	11	6	2	3	4	70
MEDITERRANEAN												
Cyprus				1								1
Gibraltar								1		1		2
Mediterranean Total				1				1		1		3
GRAND TOTALS	29	16	4	9	9	21	26	31	19	14	5	183

MEDICAL TECHNICAL COOPERATION TRAINING AWARDS 1976/77

Group	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*	*Total*
AFRICA												
Gambia									1	2		3
Ghana	6	3	1			2	3	2				17
Kenya	3	4		3		11	8	7		4	1	41
Lesotho	1					1		1	1			4
Malawi	2	1			1	2	1	4	1		1	13
Mauritius							3	2				5
Nigeria	4	2			2	2		1	3			14
Seychelles	1		1					3			2	7
Sierra Leone	1		2		1	1	1	2	2			10
Swaziland										2		2
Tanzania		1	1		1	2	4		1			10
Uganda	1					1			1			3
Zambia		1		1		1	1					4
Africa Total	19	12	5	4	5	23	21	22	10	8	4	133
CARIBBEAN												
Barbados			1	1		3	1	1				7
Belize					1							1
St. Helena					1							1
St. Lucia								1				1
Trinidad and Tobago							1	1				2
Turks and Caicos								1				1
Caribbean Total			1	1	2	3	2	4				13
SOUTH AND EAST ASIA												
Bangladesh	1	1		1		1	2				3	9
India	1			1								2
Malaysia	8	3	1	2	6	2	1	7				30
Singapore	2	4		2		2						10
Sri Lanka	4				2	6	4	1		1		18
South and East Asia Total	16	8	1	6	8	11	7	8		1	3	69
MEDITERRANEAN												
Cyprus	2	2		1		1		1				7
Gibraltar							2	1		1		4
Mediterranean Total	2	2		1		1	2	2		1		11
PACIFIC												
Gilbert Islands							1	1				2
The New Hebrides (the Anglo-French Condominium of)								1				1
Tonga	1											1
Western Samoa								2	2			4
Pacific Total	1						1	4	2			8
GRAND TOTALS	38	22	7	12	15	38	33	40	12	10	7	234

ANNEX K

COMMONWEALTH SCHOLARSHIP AND FELLOWSHIP PLAN

Commonwealth Medical Awards made by the
Commonwealth Scholarship Commission in Britain

Calendar Years	*1974*			*1975*			*1976*		
	**CMS*	*CMF*	*CSMF*	*CMS*	*CMF*	*CSMF*	*CMS*	*CMF*	*CSMF*
Developing Commonwealth									
Bangladesh	3			2			3		
Barbados	1								1
Fiji	1								
Ghana	1	1		2	1				
Hong Kong	2	1					3	2	
India	6	46	9	2	33	10	1	32	2
Jamaica	1			1			1		
Kenya				1					
Malaysia	2			1			1		
Malta		1		2					
Nigeria	6	2		6			2		
St. Vincent	1			1			1		1
Singapore	3			2			3		
Sri Lanka			2	3	1	1	2		
Trinidad and Tobago							1		
Western Samoa	1								
Total Developing Commonwealth	28	51	11	23	35	11	18	34	4
Other Commonwealth									
Australia	1	5	1		6			3	
Canada	1						1		
New Zealand	1			1	2			3	
GRAND TOTALS	31	56	12	24	43	11	19	40	4

*CMS – Commonwealth Medical Scholar
CMF – Commonwealth Medical Fellow
CSMF – Commonwealth Senior Medical Fellow

ANNEX L

BRITISH VOLUNTEER PROGRAMME: MEDICAL PERSONNEL RECRUITED 1974–1976

Country	*Year*	*Admin*	*Doctors and specialists*	*Auxiliaries*	*Nurses*	*Dental*	*Total*
AFRICA							
Botswana	1974	–	–	2	–	–	2
	1975	–	–	2	1	–	3
	1976	–	–	1	1	–	2
The Gambia	1974	–	–	–	–	–	–
	1975	–	–	–	–	–	–
	1976	–	–	–	2	–	2
Ghana	1974	–	–	2	1	–	3
	1975	–	–	1	4	–	5
	1976	–	–	–	2	–	2
Kenya	1974	2	–	5	3	–	10
	1975	1	–	1	9	–	11
	1976	–	–	1	5	–	6
Lesotho	1974	–	1	–	–	–	1
	1975	–	1	–	–	–	1
	1976	1	–	–	–	–	1
Malawi	1974	–	–	–	3	–	3
	1975	–	–	–	3	–	3
	1976	–	2	–	2	–	4
Nigeria	1974	1	3	3	2	–	9
	1975	1	–	2	2	–	5
	1976	–	–	2	3	–	5
Seychelles	1974	–	–	–	1	–	1
	1975	–	–	–	–	–	–
	1976	–	–	–	–	–	–
Sierra Leone	1974	1	–	–	1	–	2
	1975	1	–	1	–	–	2
	1976	–	–	–	–	–	–
Swaziland	1974	–	–	–	–	–	–
	1975	–	–	1	–	–	1
	1976	1	–	–	–	–	1
Tanzania	1974	–	–	2	4	–	6
	1975	–	–	–	3	–	3
	1976	–	–	2	1	–	3
Zambia	1974	–	–	4	8	–	12
	1975	–	–	1	5	–	6
	1976	–	–	3	7	–	10
CARIBBEAN							
Jamaica	1974	–	–	1	–	–	1
	1975	–	–	1	–	–	1
	1976	–	–	–	–	–	–
Montserrat	1974	–	–	–	–	–	–
	1975	–	–	–	–	–	–
	1976	–	–	1	–	–	1
Virgin Islands	1974	1	–	–	–	–	1
	1975	–	–	–	–	–	–
	1976	–	–	–	–	–	–

Country	*Year*	*Admin*	*Doctors and specialists*	*Auxiliaries*	*Nurses*	*Dental*	*Total*
ASIA							
Bangladesh	1974	–	1	2	5	–	8
	1975	–	–	2	4	–	6
	1976	–	1	2	4	–	7
India	1974	–	–	2	1	–	3
	1975	–	–	–	1	–	1
	1976	–	–	1	–	–	1
Malaysia	1974	–	–	1	2	–	3
	1975	2	–	–	3	1	6
	1976	–	–	4	2	–	7
PACIFIC							
Papua New Guinea	1974	1	3	–	5	–	9
	1975	2	–	1	3	–	6
	1976	–	1	–	3	–	4

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ACTION TAKEN SINCE THE LAST COMMONWEALTH MEDICAL CONFERENCE

Background paper prepared by the Government of Seychelles

ESTABLISHMENT OF A PUBLIC HEALTH TRAINING SCHOOL

The school runs a full time three year course involving both theoretical and practical (field) training and leading to a local certificate in public health. The curriculum is based on that of the Royal Society of Health with modifications to suit local conditions.

2. The minimum entry requirements are GCE 'O' levels in appropriate science subjects. To date four candidates have successfully completed the course. There are currently ten trainees at different stages of training, and three of these did not meet the minimum academic standard stipulated in that they were Form III candidates. They were accepted because of insufficient number of suitable applicants.

3. In February 1976 a medical officer, through British technical assistance, was assigned full-time to the public health section with the object of organising the expansion and improvement of rural health services, but especially maternal and child health services. Prior to this, these services were performed entirely by the public health nursing staff. The medical officer has also been entrusted with the task of integrating family planning into the government medical service; until March of this year the family planning service was provided solely by IPPF, which has been operating in the Seychelles for the last ten years.

VACCINATION PROGRAMME

4. We now have a comprehensive vaccination programme which includes measles. Vaccination against measles was first introduced in 1969 during an epidemic. We were unable to continue it as a regular on-going programme for lack of funds. Since the beginning of this year we have been able to achieve this with UNICEF aid. It is estimated that at present about 75 per cent of children attending the clinics receive full coverage. UNICEF is to supply us with a record system that will allow us to identify defaulters and hopefully achieve 100 per cent coverage. Deaths from tetanus still occur. There were three in 1976, including a case of neonatal tetanus, despite the ready availability of tetanus toxoid. Antenatal patients are now being immunised as a matter of routine and employers of farm workers and other at-risk groups are being made aware of the need to have their employees immunised.

WATER SUPPLY

5. All our rivers and streams have been shown to be faecally contaminated (survey 1971), so the ultimate aim from a health standpoint is to provide every household with treated water. In future any new scheme will incorporate some form of treatment works, and existing untreated supplies will be treated as and when funds become available. All treated supplies are being metered to avoid wastage and ensure a better sharing out of resources. Fluoridation of water supplies is not practised.

Water projects completed or under construction

6. The Cascade water scheme was completed in 1975 at a cost of £2,500,000. The project was financed by a United Kingdom loan from Commonwealth Development funds. Its present output is 7,000 m^3 per day and provision has been made for the works to be extended in the future to double its present output.

7. **The Anse Louis scheme**, with an output of 10,000 gallons per day, was completed early this year and supplies a community of around 1,400 with treated water. It was funded by UNICEF.

8. **The La Gogue scheme** was begun in 1976 and is scheduled for completion in 1979. Financed by a British grant-in-aid, the project is estimated to cost in the region of £6 million. It is essentially a reservoir with a capacity of 220 million gallons which will allow storage of the overflow from an existing dam, the Rocham dam constructed in 1969 and having only a modest capacity of 11 million gallons.

9. **The Anse Boileau scheme** has been made possible under a second agreement between UNICEF and the Seychelles Government signed in July of this year. It is expected to start early in 1978 and be completed by the end of the year. It is intended to operate as a self-help scheme involving the local community. Past experience has taught that self-help schemes of this nature, though commendable in principle, do not always work satisfactorily in practice. The project will entail converting an existing untreated water supply to provide treated water to the inhabitants of Anse Boileau.

10. **The La Digue scheme** is nearing completion and is being financed jointly by British aid and a German national who owns a large estate on the island of La Digue. The water is pumped from a well, treated and stored in a 26,000 gallon storage tank. It will supply treated water at the rate of 100,000 gallons per day, sufficient to cater for the needs of the whole island which has a population of just over 2,000.

11. **The Salazie scheme** on Praslin, the second largest island of the Republic, is being financed in part by Canadian aid and in part by a private investor.

12. The number of water projects completed or under construction serves to underline our Government's determination to develop a comprehensive system of treated water supply to meet the needs of the local population as well as our expanding tourist industry.

SEWAGE DISPOSAL

13. The mains drainage installed in the capital town of Victoria in 1972 was initially designed to serve a population of 24,000 people in the town and surrounding area. However, it serves only a few offices and shops in the town centre and plans for its extension await availability of funds.

14. Below is a comparison of figures, expressed as percentages of the total population, drawn from the 1971 and 1977 censuses.

	Flush toilet	Pit latrine	Others
	%	%	%
1971 Census	18.7	67.4	13.9
1977 Census	32.8	62.3	4.9

All the main hotels have their own sewage treatment plant which must comply with the UK Royal Commission standard. However, the effluent is not at present bacteriologically monitored as this awaits the establishment of a public health laboratory.

OTHER ACTION

15. Good record keeping is an essential part of all medical practice and our present record system leaves a lot to be desired. With the help of WHO, a statistician and records consultant was recently assigned to the Medical Division to advise on ways of improving the system.

16. A major disaster plan and a cholera contingency plan have been drawn up.