3. CURRENT PROVISION AND POTENTIAL OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

3.1 The governments of many developing countries regard technical and vocational education and training as one of the key elements in national development. This view is held in countries of all sizes and stages of development, but particularly so in Island Developing and Other Specially Disadvantaged States where isolation and dependence on other countries for technological support creates a pressing need for the development of their own technical education and training systems. This development of technical education in small states during recent years has followed an approach adopted in larger, more industrialised countries, that is the establishment of purpose built technical colleges to provide skilled labour at craft and technical levels. Such colleges, often built, equipped and staffed with assistance from bilateral and multilateral donors, contain classrooms, laboratories, drawing offices and workshops suitable for technical and commercial courses leading to national, regional and international examinations. The industrial plant in these technical colleges usually includes woodworking machinery, engineering machine tools such as lathes and milling machines, automobile and agricultural repair equipment, air-conditioning and refrigeration plant, and electric arc and oxy-acetylene welding bays. These typical engineering and construction facilities, together with laboratories and commercial office machinery rooms, constitute a substantial technological resource, in both technical training and developmental assistance to the community.

3.2 From the Country Papers brought to the meeting by participants it is clear that in the small states of the Commonwealth Caribbean and South Pacific, technical college facilities and their capabilities follow the general pattern described in the previous paragraph. For example, the Morne Fortune Technical College in St Lucia comprises five departments: technical teacher training, building, engineering, hotel trades and commerce. Both full-time and part-time courses are offered, leading to qualifications at craft and technician levels. In collaboration with industry the College provides a wide range of courses to up-grade employees in the public and private sectors.

3.3 In Kiribati, the Tarawa Technical Institute is the focal point of technical education and training in engineering, construction, business studies and public sector training. A Department of Appropriate Technology has been established at the Institute to carry out innovative programmes, focused on the needs of the basic family unit. Mobile training teams from the Institute co-ordinate training activities at community level, in close co-operation with Island Councils and church organisations.

3.4 The Samuel Jackman Prescod Polytechnic in Barbados offers craft courses in a wide range of engineering, construction and vocational subjects geared to the industrial and commercial manpower needs of the country. Technician level courses are available at the Barbados Community College in three main departments - Technology, Hospitality and Health Science.

3.5 Extracts from the Country Papers relating to the current provision of technical education are given at the end of this chapter. These show that

technical education in small states is also provided from a number of sources other than post-secondary technical institutions. A number of countries have established technical courses in secondary schools - for example the Multilateral Schools and the Community High Schools in Guyana offer a range of technical subjects: industrial arts (design and technology and technical drawing), agriculture, home economics and commercial work. In St Vincent, secondary high schools prepare pupils for the world of work by providing courses in accounting, office practice, industrial arts and agriculture.

3.6 In a number of countries technical education and training is provided outside the secondary and post-secondary sectors of education. Some institutions in Dominica offer vocational education and training. These include the Public Works Department, the Public Health Department and the Division of Community Services. In other small states, training of this nature is provided by government departments, private industry, and church and voluntary organisations.

3.7 In all, the current provision of technical and vocational education and training in small states represented at the meeting covers a very wide spectrum of formal and non-formal approaches to the development of skilled human resources. Any assessment of national capacity to develop human resources must take account of the many and varied forms of formal and non-formal technical and vocational education and training - supported by governments or by private initiatives. The capacity of technical and vocational education and training to assist national development will be strengthened if it's separate sources and provisions are regarded as a totality rather than a range of unco-ordinated efforts. The co-ordination of all provisions of technical and vocational education and training is one way to tap unrealised potential and the management of this process is dealt with in Chapter 4.

3.8 The potential of technical and vocational education and training to increase its contribution to national development may also be realised by using existing resources - buildings, equipment, staff and students - to provide innovative training responses to specific development needs. In the agricultural sector the skills of personnel engaged in the operation and maintenance of agricultural machinery could be improved through short on-the-job courses. Such training could be organised by a technical college, or a public works department, or a department of agriculture. Taken singly, the resources of these separate institutions may be insufficient to provide training responses to a very common development need - the care and maintenance of agricultural machinery. However, a combination of resource inputs from all three sources could release latent energy in the technical and vocational education and training system. Drawing on the special strengths of each source, such inputs could include the expertise of technical teachers to design a training module, the heavy plant experience and equipment of public works, and the specialist knowledge of agricultural field officers.

3.9 The meeting devoted a great deal of attention to the innovative use of existing resources in a technical and vocational education and training system. In Chapter 5 three case studies - from The Bahamas, Jamaica and Kiribati - illustrate how latent energy in technical and vocational education and training systems can be released through an innovative approach to the design and implementation of training programmes. These case studies provided a solid foundation for a rigorous and detailed

examination of innovative training responses to specific national development needs. This intensive work by the meeting resulted in the design and analysis of training responses based on innovative methods. Some of these training responses are detailed in Chapter 6 and they show, in a very practical way, how the present capacity of technical and vocational education and training to serve national development can be substantially increased.

COUNTRY PAPER EXTRACTS ON THE CURRENT PROVISION AND POTENTIAL OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING FOR DEVELOPMENT

Commonwealth Caribbean

ANGUILLA

The main elements of formal technical and vocational education and training are woodwork and home economics subjects offered in the island's only secondary school. There is an attempt to encourage handicraft development on a non-formal basis. Tie-dying is promoted and a shop has been opened where handicrafts are handled on a sale-or-return-basis. A few Anguillians receive non-formal training in the construction industry and become skilled workers through on-the-job experience.

ANTIGUA AND BARBUDA

The Antigua Hotel and Catering School, established in 1970, provided training for service workers in the hospitality industry. This school was absorbed into a new institution, the Antigua Technical College, established in 1972. The new college offered courses in basic hotel and catering work, carpentry, masonry, plumbing, motor mechanics, basic engineering, electrical installation, refrigeration, secretarial and commercial studies. In 1978 the College was merged with the Teachers College to form the Antigua State College. In 1981 the hotel and catering programme was transferred from the State College to the Ministry of Economic Development and Tourism.

Technical and vocational education in schools embraces four main areas: industrial arts, home economics, girls handicrafts, and commercial studies. In primary and junior secondary schools industrial arts and home economics are offered to all students where facilities are available. At senior secondary level commercial studies are provided for selected students, and industrial arts, home economics and girls handicrafts are offered as options. In addition to these provisions by government schools, private individuals run day and evening courses -mainly in shorthand typing, book-keeping and business English. Other sources of technical and vocational education and training include:

1. Ministry of Public Works and Communication. On-the-job craft courses in engineering and construction work.

2. The Community Development Branch, Ministry of Education, which offers craft and domestic science courses for employed and unemployed adults and young people.

3. Craft courses offered by trade unions. These include appliance repairs, construction, domestic science, hotel work and secretarial studies.

4. Two steelwork and four furniture companies provide on-the-job training for apprentices. Some of these companies organise a few formal sessions for related studies. It is likely that the West Indies Oil Company will soon resume its well-organised systematic training programme.

In addition to their present capacity, all these sources of technical and vocational education and training have potential for an increased contribution to development. For example, government education and training institutions could utilise the resources of industrial establishments to provide on-the-job experience. This approach could be supported by measures to assist trainees to embark on productive and remunerative work, for example, with help to form co-operatives, provide initial finance and offer marketing advice. One such project is under consideration by the Community Development Branch, Ministry of Education.

THE BAHAMAS

Formal technical and professional training programmes are offered by the College of The Bahamas, The Bahamas Hotel Training College, the Industrial Training Centre (National Industrial Training Council), the Ministry of Education and Culture and the School of Nursing. The College of The Bahamas has seven academic divisions. The Division of Technical and Vocational Studies offers architectural drafting, air conditioning, automobile engineering, cosmetology, light clothing manufacture, and welding. The Division of Applied Science and the Division of Business Administrative Studies also provide technical and vocational education and training. The Bahamas Hotel Training College trains hotel and allied industry personnel at all levels and it offers several part-time and full-time fully institutional programmes and a variety of on-the-job courses. The Industrial Training Centre (National Industrial Training Council) offers courses in carpentry, cosmetology, electrical installation, industrial sewing, masonry, plumbing, welding, hotel training and housekeeping. Trainees in carpentry, electrical installation, masonry, plumbing and welding are placed for one month internships during their last month in the programme. Trainees in cosmetology, industrial sewing, hotel training and housekeeping are placed for two weeks.

The Ministry of Education and Culture provides technical and vocational courses in all government secondary schools. These courses include agriculture, business education, cosmetology, electricity, electronics, home economics, hotel training, motor mechanics, plumbing, technical drawing and woodwork. The School of Nursing offers five areas of specialisation - registered nursing, clinical nursing, midwifery, community nursing and psychiatric nursing.

Non-formal education may be described as organised educational activity outside the established formal school system, e.g. pre-school day care centres, school equivalency programmes, adolescent and adult classes, school based curricula activities, young farmers' clubs, sports and recreational groups. This category of technical and vocational education and training includes a wide range of privately owned and operated institutions. Some privately owned training organisations offer book-keeping, clerical, English, filing, shorthand/typing, switchboard and telex courses. The Public Service Training Centre is an arm of the Department

of Public Personnel which provides a full range of training programmes for Government employees in public administration and related studies. The courses are designed to improve job performance and management skills and are structured to meet specific, identified needs in the public sector. Programmes on public policy issues are also offered periodically. The Ministry of Youth, Sports and Community Affairs' Youth Division is responsible for promoting youth development in the 5-25 year age group with emphasis on education, sports and cultural activities. The 1982 programmes include: leisure, creative and cultural development; education, training and participation in economic development; international regional participation; and involvement and participation in community development.

In-house company training is provided at various levels by professional bodies such as The Bahamas Institute of Bankers and The Bahamas Institute of Chartered Accountants. Construction companies also provide training in various crafts. Industrial plants, e.g. The Bahamas Cement Company, Bahamas Oil and Refining (BORCO), Burmah Oil, Franklin Chemicals, Freeport Port and Light also provide extensive training for their employees.

BARBADOS

Technical and vocational education in Barbados is provided through a wide variety of courses at a number of institutions. All secondary schools offer some form of technical and vocational education and training. Courses offered are industrial arts, home economics, commercial studies, agriculture and art and crafts. These courses assist some students to go directly into employment, but basically they are regarded as preparation for further education and training.

The Samuel Jackman Prescod Polytechnic offers training in a wide variety of courses at craftsman level. These include: building, mechanical engineering, electrical installation, electronics, welding, masonry and tiling, auto-body repair, auto-mechanics, agriculture, home economics, sewing machine operation, garment design and shoe-making. Courses are also offered in building and engineering drawing at 'O' and 'A' levels. It is planned that printing and cosmetology will be added in the coming year.

The Barbados Community College has three divisions. The Division of Technology offers courses at technician level in building, civil engineering and electrical engineering. A course in surveying leading to a professional certificate in land surveying is also offered. Other short and ad hoc courses are mounted as the needs demand. Participants for these courses come mainly from the secondary schools or from the Polytechnic. The Division of Hospitality Studies trains persons for the hotel and catering industries. Courses include: hotel catering and institutional management, food service and catering supervision, basic cookery, and house-keeping skills, waiting and bartending procedures, and front office sales and reception procedures. The Division of Health Science offers courses in the following: medical record technology, medical laboratory technology, pharmaceuticals, dietetic technology, rehabilitation therapy, community health nursing and public health inspection.

The Skills Training Programme of the Ministry of Labour and Social Security offers training designed on a modular basis in a variety of skills.

Participants should normally be eighteen years old and over. Courses are offered in carpentry, masonry, steel-bending, electrical installation, plumbing, auto-mechanics, needlecraft, upholstery, horticulture and tractor operation. The Handicraft Division of the Industrial Development Corporation (IDC) offers training in some areas of handicrafts. The IDC organises training in straw work, pottery, handbag making, loom weaving and miscellaneous crafts from wood, metal, shells etc.

The programmes offered by the Barbados Community College, the Samuel Jackman Prescod Polytechnic and the Skills Training Programme make a very significant contribution to development. The handicraft programmes offered by the Industrial Development Corporation (IDC) also play a very significant role in the utilisation of indigenous resources. Most of the training is concentrated on crafts which utilise indigenous materials and relate very closely to the cultural background of Barbadians. They renew and maintain some of the traditional craft skills. For example, pottery - for which there is an abundance of local materials - was once a thriving craft, but over the years had lost its importance and was practised by a mere handful of traditional potters. Today through the efforts of IDC this craft is reviving at a rapid rate. The significance of the IDC training programmes is that they reach out to people who cannot find employment in the productive sector. For many of the trainees, part-time work in cottage industries is the most convenient form of employment.

BERMUDA

Most secondary schools provide technical subjects such as woodwork, metalwork, domestic science, typing and shorthand, automotive work, agriculture and hotel work. Pupils undertaking hotel work have an opportunity to gain experience at the commercial hotel operated by The Bermuda College (Department of Hotel Technology).

The Bermuda College has four departments. The Department of Commerce and Technology offers programmes in automotive, electrical, electronics, refrigeration and air conditioning, plumbing, carpentry, and a mixture of formal, and on-the-job training in construction, masonry and stationary power engineering. Other formal courses include accountancy, computers, book-keeping, secretarial work, management and business administration. In the Department of Academic Studies students are prepared for transfer to degree programmes at universities and colleges in Britain, U.S.A. and Canada, with full credit for the work done in Bermuda. The Department of Hotel Technology offers a wide range of programmes covering all aspects of food production (cooking), hotel service (waiting), wine and liquor technology (bartending), food and beverage control, reception and management. Such programmes are designed to meet local hotel needs, but there is a university transfer programme to enable students to complete the first two years of a four year degree programme in Bermuda prior to a transfer to selected overseas universities. The Department has the facilities of a training hotel, owned and operated by the college. The hotel is run on a commercial basis and students are trained in real working conditions in order to supply trained personnel to the hospitality industry.

The Extension Division caters for all part-time courses - evening, day release, or twilight classes (between 4.30 and 7.00 p.m.). The College will establish any course that has a guaranteed intake of 12 persons.

There are approximately 2,500 students attending part-time courses, which is 5 per cent of the entire population or approximately 12 per cent of the labour force. These high participation rates indicate the large number of people seeking education and training.

BRITISH VIRGIN ISLANDS

During the first three years in secondary school all students receive instruction in industrial arts. The programme is a general one in which students are exposed to various types of skills - carpentry, housecraft, metalwork, technical drawing, principles of electricity and upholstery. Students then select a special area of concentration for the final two years. The areas from which they may choose are: business studies (accounts, shorthand, typewriting, office arts, principles of business), auto-mechanics, woodwork, electricity/electronics and home economics (food and nutrition, needlecraft, house-craft, management). At post-secondary level formal technical and vocational education is provided by tertiary level institutions in other Caribbean countries: Jamaica, Trinidad and Tobago, The Bahamas, St Lucia, Antigua, and U.S. Virgin Islands, as well as Canada, the U.S.A. and Britain. The B.V.I. Government is planning to establish a post-secondary institution which will provide training in at least six areas of technical and vocational education: business studies, hospitality trades, building trades, marine trades, and agriculture and fisheries.

CAYMAN ISLANDS

The Cayman Islands High School - organised on the lines of the British Comprehensive system - is for children of 11 to 18 years of age. In A **Profile of the Cayman Islands System June 1978** it was stated:

> "If our education system is to meet the needs of the community it serves, then there is a dire necessity for the provision of courses geared to a commercial or technical vocation. We must not overlook the fact that if we fail to provide suitable courses at this level for our students, we are in fact giving short shift to no less than 80 per cent of our school population".

The International College of the Cayman Islands offers courses in business and related fields up to Associates & Degree Level. The Community College (evening classes) attached to the High School offers courses to meet the following needs: academic, remedial, semi-professional-typing, accounts, professional (Institute of Bankers), and recreational. These include courses to CSE, 'O' and 'A' levels. The Hotel School offers a wide range of subjects related to the hospitality industry, from basic services to management level. The Marine School deals with both engineering and deck training. Navigation students receive practical instruction on a training ship, but the workshop facilities for engineering students are not fully operative. The Building and Trade School offers full time courses in carpentry, and part-time courses in roofing, architectural drawing, plumbing, air conditioning and refrigeration, and concrete technology.

DOMINICA

The Clifton Dupigny Technical College is the major institution responsible for technical and vocational education and training. In addition the Convent High School offers pre-vocational education mainly in business education and home economics. Fourteen of the all-age (primary) schools provide pre-vocational education and work study programmes in the last three years of post-primary education.

Several institutions are involved in non-formal technical and vocational education and training. They include: the Centre for Adult Education, the Public Works Department, Public Health Department, Social League, Division of Community Services, Youth Division, Rotary, Planned Parenthood Association, and the Agricultural Department through its extension services. Training offered by the Public Works Department and the Social League is on-going and personnel oriented. In the other institutions the education and training appears to be directed towards development of skills required for community building.

All of these sources of technical and vocational education and training contribute to national development. The promise of increasing this contribution through an innovative use of existing resources is particularly strong at the Technical College, with its capacity to offer technical and vocational education and training at a high level. The appointment of well trained staff and the acquisition of good facilities will create a pool of highly skilled craftsmen, technicians and technologists. Another resource of great promise is the Junior Secondary Programme - an innovation in pre-vocational education and training recently introduced in Dominica. The programme has a high potential to contribute to development through an increased usage of indigenous resources.

GUYANA

Technical and vocational education and training is provided formally within the school system, in post-secondary institutions and in tertiary institutions. At the end of primary schooling, students take a placement examination, the Secondary Schools Entrance Examination. Those whose performance indicate that they can cope with and benefit from the more academic programme are admitted to Multilateral Schools. The remainder enter Community High Schools. In the past the traditional pattern of the grammar schools curriculum paid scant regard to technical and vocational education. In 1972, with the launching of Multilateral Schools, the curricula of the premier secondary schools in Guyana were extended to include technical subjects at the traditional examinations. The subjects now included are agriculture, home economics (food and nutrition, needlecraft and dress), and industrial arts (design and technology, technical drawing). Commercial education had been introduced into three girls' secondary schools but technical and vocational education gained a substantial boost when having assumed responsibility for all education in 1976 Government made all secondary schools co-educational. A division of technical education was created in 1970 headed by an Assistant Chief Education Officer (Agriculture) and a Senior Education Officer (Technical) concerned directly with industrial arts and home economics. There are specialist Education Officers in the several subjects and they function in the Education Districts visiting schools.

The students in the Multilateral Schools have an opportunity to study grammar school subjects but they are also able to study and sit for examinations in the technical subjects. Appropriately qualified candidates then enter technical institutes to pursue technician courses, enter the VIth form to do mainly physics and mathematics, or in a few instances they go directly to universities. Pupils in Community High Schools pursue a course of general education, (60 per cent of time). The remaining 40 per cent is given to pre-vocational education. At the end of the three-year period, they write part I of the Secondary Schools Diploma. In the fourth year, the time allocation is reversed. The results of parts I and II make them eligible for admission to the craft courses at the technical institutes, the certificate course in agriculture, or for employment in a number of categories both in the public and private sectors. It was hoped that a number would go into self-employment, but so far this has met with little success. Not every Community High School offers technical and vocational subjects. The subjects included in the school's curriculum are geared to the life of the community and job openings. Thus in an agricultural community agriculture, industrial arts and home economics are likely to be in the curriculum whilst business education is not. It is hoped that this arrangement will both reduce frustration amongst youth trained but unable to find employment in their home communities as well as reducing rural-urban migration.

In the non-formal sector the Adult Education Association provides a variety of classes in a range of subjects that vary from highly academic preparation for recognised examinations within the formal system to quite informal, practical treatments of the interests of housewives. The Association uses school facilities including laboratories and workshops, outside school hours. This very wide programme seems ambitious but it is really an attempt to meet needs that can be analysed into clusters of problems. For example, there is often the need to up-grade literacy and numeracy before promoting skill acquisition, which is itself to be followed by learning how to manage a small enterprise, followed by knowledge and insights into the marketing of produce from that enterprise.

Whilst the Adult Education Association is a voluntary organisation, privately run, in many ways a Government counterpart to the Association is found in the activities of the Co-operatives Department and Extra-Mural Department of the University of Guyana. They do not sponsor examination courses but both agencies arrange non-formal courses to meet the needs outlined, and both operate over the entire country. An interesting departure from the pattern of the Adult Education Association and the Co-operatives Department is provided by the activities of the Women's Revolutionary Socialist Movement (WRSM). This is the women's arm of the Peoples National Congress, the political party lead by the Executive President of Guyana. Their objective is to raise the consciousness of women in Guyana politically, economically and culturally and to prepare them to function on an equal footing with men in every sphere of activity. The aim of the WRSM is to modify behaviour and therefore constitutes education. A fair amount of attention is paid to topics traditionally associated with women such as child care, nutrition, food preservation, crafts etc. There is also a noticeable emphasis on acquisition of skills such as brick-laying and carpentry and a cluster of other skills associated with appropriate technology, skills which have hitherto been the preserve of men. The skills acquired are used for personal and family benefit as well as in performing self-help and community service. Their way of learning and doing things is best

simplified in a UNICEF-sponsored project they have undertaken jointly with Christian and non-Christian religious organisations.

The practical and non-formal orientation of this project is shown by the fact that nutrition is based upon the actual production of foodstuffs followed by preservation and preparation. Extension Officers of the Ministry of Agriculture make inputs of know-how and some planting materials as does the agriculture teacher attached to school farms in the district. Families are assisted to plant crops and rear pigs, ducks, chickens and occasionally cows. Whilst the WRSM provides the necessary stimulus to parents, the school provides complementary stimuli to the students. The food preservation aspect of the project introduces appropriate technology by the construction and use of solar driers to preserve fish, shrimps and a variety of vegetables. The association of schools with the project has brought three kinds of benefits. Firstly, as a result of schools and some parents being brought closer through the exercise, those parents show more interest in their children's problems and progress at school. Secondly, the gap between formal and non-formal education has been bridged. Thirdly, a school has benefitted by way of the gift of a windmill for pumping water into an over-head tank to supply the school. This last is an outcome of the appropriate technology aspect of the project. Pupils of the school have started to study the windmill with a view to designing and building one or more so their full needs can be met. This is an excellent opportunity for teaching science and technology by informal and non-formal ways whilst performing useful work. Finally, this project illustrates how bridges can be built between formal and non-formal technical and vocational education and training.

JAMAICA

High level technical and vocational education and training is offered at the College of Arts, Science and Technology. This large polytechnic, which serves both national and regional needs, has a student population of 3,500. The College offers 70 different programmes for full-time, part-time and evening students. A number of these programmes lead to qualifications for professional practice in most Commonwealth Caribbean countries. Special courses and programmes have also been developed, for example for bio-medical engineering technicians, and modular courses in electronics and telecommunication. The College has also undertaken a curriculum development project workshop for the Caribbean Examinations Council. The College is continuing to grow, and an extensive programme of expansion is now being executed.

The curricula in schools for technical and vocational education have been divided into five broad areas: agriculture, art and craft, business education, home economics and industrial education. These subjects are offered at different levels in both the formal and the non-formal systems. The objectives of the programmes and methodologies applied vary between these two systems, as they serve different target groups.

Art and craft work using local materials is an important part of the tourist industry. Industrial education includes the use of a variety of local woods to produce furniture. Agriculture and home economics have to be linked as together they offer tremendous scope for agri-industry. Jamaica is noted for its variety of species of tropical fruits and vegetables. Since these crops are seasonal there is much scope for the development of food

technology. Business education is an essential part of industrial development, which requires sound business practices, supported by efficient office skills.

MONTSERRAT

The Montserrat Technical College is responsible for most of the formal technical and vocational education and training being carried out in the country. The College is relatively small, but it offers a number of craft level courses in office arts, auto-mechanics, carpentry and joinery, electrical engineering, masonry and plumbing. In addition, a small number of part-time technician level courses are available. The College programme is complemented by introductory courses in the secondary education sector.

Non-formal technical/vocational education and training is not yet properly organised. However, some non-formal work has been carried out by agencies such as our UWI Extra-Mural Department and Agricultural Extension Department. All of the formal and non-formal agencies mentioned above have the capacity to make a contribution towards developing Montserrat's indigenous resources. However, the Montserrat Technical College would perhaps be expected to make the major formal and non-formal developmental contribution.

ST CHRISTOPHER-NEVIS

Traditionally technical and vocational education in the islands has been provided by the technical and vocational wings of the Department of All-Age Schools, the former Grammar School for boys and the High School for girls, now replaced by a network of comprehensive High Schools, and at post-secondary level via the St Christopher-Nevis Technical College. Non-formally it has been provided through the Apprenticeship System, mainly at the Central Sugar Factory, Basseterre and on-the-job training schemes which several large firms, industries and corporations undertake in their own self interest. Informally it is run through cottage type industries and indigenous technology, home or family based. There was (and still is) the tendency to overlook this aspect, but it is through the informal system that there grew up the vast army of semi-skilled workers in the twilight zone of the urban section of our economy.

The non-formal Adult Education programme in St Christopher-Nevis seeks to encourage among its nationals the development of saleable skills to improve the quality of life in the community, the nurturing of positive interpersonal relationships which foster the attitude of being "one's brother's-keeper" and the acquisition of literacy and numeracy skills which would render each person functional at the highest level of his ability. Each objective has implications for technical and vocational education and training, and is intended to be an improvement on what used to be the conception of adult educational activity in the state. The newest dimension to this activity has been the development of economically viable programmes which require technical and vocational skills.

The Young Mothers Group operating under the auspices of the local Family Planning Association is securing land from the National Agricultural

Organisation and guidance from the Agricultural Department and the Caribbean Agricultural Research and Development Institute (CARDI) to launch a Hot (Pepper) Sauce Industry both for the local market and for export.

The Ministry of Education jointly with the Agricultural Department and CARDI have launched a pilot project-Scientific Kitchen Gardening. The intention is to encourage people to utilise every available space in growing kitchen vegetables taking into account the type of crop that will thrive best on a particular piece of land at a given season.

In addition to the above the Ministry of Education has organised home improvement classes which embody cooking, laundering, food preservation and making useful articles for the home, needlework classes in which people learn to make and repair clothing and home maintenance programmes which prepare people for effecting repairs to their houses and to furniture.

The Teenage Family Life Education Project includes a programme of craft development. The young ladies are taught to make artifices as souvenier items. All three projects utilise local expertise and can be developed to make a significant impact on the economy. It would appear that the Scientific Gardening Programme has the greatest potential for contributing to the growth of the economy. The people must develop the necessary skills to diversify the all important agriculture and break the stranglehold of our total dependence on the mono-crop sugar cane.

Technical and vocational education is receiving more emphasis in the secondary and all-age schools than a decade ago. In an effort to improve the hitherto limited choices available to students the Ministry has recently expanded the range of commercial arts subjects in Cayon, Sandy Point and Charlestown Secondary School. Another school, the Basseterre (Senior) High received an additional stock of typewriters. Particular mention should also be made of the employment of a supervisor to co-ordinate the teaching of secretarial courses in all high schools. A scheme is being implemented to broaden the exposure of some students graduating from the Basseterre Junior High school, who may find employment opportunities as carpenters and masons.

The home economics programme in all secondary and All Age schools has been receiving qualitative improvement. Through attendance at seminars in nutrition arranged by the CARICOM Secretariat in Guyana, the home economics programme in all schools has been reorganised to give emphasis to nutrition. This programme is also worked in conjunction with the school agricultural programme. Agriculture in school is pursued with perhaps two clearly established target groups. The persons who would leave school equipped to promote their own back yard or kitchen vegetable garden. The second target group is still perhaps the more popular. Students who pursue programmes in agriculture to write the various overseas examinations and CXC, as a passport into white-collar and blue collar jobs.

The St Christopher-Nevis Technical College is the main formal institution from which manpower needs at craft and to a lesser extent technical level are met. In response to the demand expressed by employers, the College provides intermediate level courses in mechanical and electrical engineering to upgrade craftsmen already employed. There are also a range of courses

in building, mechanical, electrical and automotive trades, secretarial studies, and one year courses in hotel trades.

ST LUCIA

The main technical and vocational education and training institutions are government operated. The Morne Fortune Technical College and the Castries Comprehensive Secondary School are administered by the Ministry of Education and Culture; the St Lucia Agricultural College by the Ministry of Agriculture, Lands, Fisheries, Labour and Co-operatives. The Technical College is divided into five sections; the Technical Teachers Training College (TTTC), the Hotel Trades School (HTS), the Building Department, the Engineering Crafts Department and the Commercial Department. The courses in the various sections are generally full-time of either one year's or two years' duration. Recruitment takes place either annually or biennially.

The following one-year courses are held at the regional TTTC: science teachers course, industrial arts (IA) teachers course, and the technical teachers course. The HTS runs a one-year full-time basic hotel trades course, and 10-week part-time courses for hotel department supervisors. The Building Section has the following two-year courses: building technicians, masonry, plumbing, and carpentry/joinery. The Engineering Crafts Section conducts courses in auto-mechanics, construction mechanics (heavy plant), refrigeration and air-conditioning, mechanical engineering crafts, and electrical installation. The Commercial Section concentrates on a two-year full-time secretarial course, and a business studies course is planned. The majority of courses are offered at the basic craft level, although a few technician level courses are conducted which require students of GCE 'O' Level or CXC General Proficiency attainment in English and Mathematics.

The Technical College is involved in the apprenticeship scheme of the St Lucia Electricity Services Ltd, and conducts part-time upgrading courses for semi-skilled employees of the company. The College also provides facilities for Cable and Wireless Ltd to operate a regional telecommunications craft training programme. From time to time, the College puts on part-time courses e.g., customs brokerage, refrigeration and air-conditioning, plumbing, and accounting, in response to demands from the general public or employers. For example, this year for the first time, a part-time evening course, comprising typewriting and the elements of office practice is being conducted for junior typists in the Civil Service. It is planned to develop new courses at the College to cater for a larger clientele - to relieve the shortage of skills where they are lacking, and to upgrade them where they are deficient. It is expected that new courses will be offered in electronics, automative body work, small business management, advanced accounting, architectural technology, land surveying, supervisory and foremanship studies, garment manufacture, and hotel management. It is expected that the facilities of the Hotel Trades School and its course provision will be expanded.

The Castries Comprehensive Secondary School (CCSS) established in 1974, is a five-form secondary school having both academic and vocational and technical offerings in its curriculum. During the first three years students are given a general balanced exposure to academic and vocational subjects. In the 4th and 5th forms students either major in vocational

subjects or academic areas. Among the technical/vocational subjects are typewriting, sewing, home economics, welding, machine shop, small engine repair, electricity, plumbing, auto-mechanics, woodwork, masonry, building construction, business studies, accounting, and technical drawing. Opportunities exist for students to take relevant external examinations, e.g., CXC and GCE in all the academic and some of the technical subjects.

The St Lucia College of Agriculture runs one-year certificate courses for intending farmers, and two-year diploma courses for agricultural technicians. Some of these diplomates become extension officers within the Ministry of Agriculture. The first year is common to both courses. During that time students attain basic agricultural knowledge and practical skills in forestry, crop production, animal production, animal health, farm business, farm machinery, agricultural science, vegetable plotwork and farm practice. Practical and academic studies have equal time weighting. In the second year, students may specialise in forestry or general agriculture. Forestry, crop and animal husbandry are studied in greater depth; the recording and interpreting of the physical and financial data from farm businesses are introduced and the agricultural sciences are stressed. The time schedule for academic and practical studies in the second year is divided in the ratio 3:2. Consideration is currently being given to conducting 3-year programmes to train agricultural technologists in specialist fields relevant to St Lucia.

The Vieux Fort Senior Secondary offers technical education, mainly in woodwork and technical drawing. Deterioration of the building and lack of instructors have put a temporary halt to instruction. However, a study is being undertaken to transform the school into a comprehensive institution. At the Soufriere Comprehensive School home economics, needlecraft, woodwork and agricultural science have been attempted at GCE 'O' Level standard, but the results so far have not been very successful.The six Junior Secondary Schools offer all or some of woodwork, technical drawing, home economics and agricultural science.

The private I-IV Form Girls Vocational School, now 13 years old, and run by the Corpus Christi Carmelite Sisters, offers needlecraft, home economics, book-keeping, shorthand, typewriting, and commerce in addition to the regular academic subjects. The school caters for girls who are 13 years and over. The students in the IVth Form register for the Pitman's examination in the commercial subjects. About 30 students graduate every year.

In the non-formal sector various institutions and organisations (private, quasi-government, and voluntary) carry out skills training, mainly for the youth of the country.

ST VINCENT AND THE GRENADINES

The St Vincent Grammar School (with a sixth form) and the Girls High School are government owned schools. The Intermediate High School is a privately owned school, and the remaining ten secondary schools are church schools.

Many of these schools are now preparing students for the world of work by offering among other subjects, principles of accounts, office practice,

typing, commerce, agriculture, home economics, industrial arts and, in one school - The Bequia Anglican High School - students have already written the GCE 'O' Level (Cambridge) Examination in navigation and obtained gratifying results.

The Technical Training Centre, formerly a wing of the Grammar School offers technical education mainly in the fields of general metals, woodwork and technical drawing to some 442 full time students from a number of government schools. Also, some 38 male and three female students from the St Vincent Teachers' College receive industrial arts education at the Centre while the other female students study home economics as part of their College's programme. The Centre runs an Adult Evening Programme for about 48 students in the fields of woodwork, welding and drawing. Eight of these students are women. At St Vincent Teachers' College modifications have been made to the professional and academically oriented programme to provide training opportunities for students in the fields of agriculture, industrial arts and home economics. This is in keeping with Government's policy to create in teachers an awareness of and an appreciation for skills. There are opportunities for further training offered to the most promising students so that they, in turn, may eventually become specialist teachers in the vocational and technical fields.

The St Vincent Technical College, built in 1971 is the main centre for technical education and training for students from St Vincent and the Grenadines. It presently offers training for 131 full time students and 1,126 part-time students in various fields. The College staff comprises 25 full time members and nine part timers. Subjects offered at the College are intended firstly to satisfy the manpower needs of government and local industries and then to provide training that would help to make some of the graduates independent and self employable.

In addition to these programmes in educational institutions, the Government Funding Scheme in the Ministry of Communications and Works has an organised programme for training apprentices in the field of auto-diesel mechanics. At present about 50 youths are benefiting from this programme. The Ministry of Home Affairs has 12 active Handicraft Centres where interested persons may attend a training period of approximately three months in the field of basketry and the making of local souvenirs for the tourist market. At the craft centre in Kingstown training is provided, in addition, in the fields of ceramics and jewellery.

The School for the Blind and the Centres for the Handicapped help many handicapped and disadvantaged persons enjoy a feeling of independence. The Liberty Lodge Boys' Training Centre, with the assistance of local donors and organisations, is providing training for boys who would otherwise become delinquents. The most noteworthy thing about this centre is that all inmates and day participants enter voluntarily. Many of the graduates are now responsible community supporting citizens.

TURKS AND CAICOS

Formal training falls into two categories, tuition at secondary school, and in-service training at the work place. Tuition at secondary school includes theoretical and practical training in woodwork, and theoretical training in technical drawing. Courses based on GCE and Royal Society of Arts'

syllabuses are taught over a period of four years and at the end of this pupils are expected to write exams at the GCE ordinary level. Outstanding pupils eventually go overseas for further training.

On-the-job training is done at a few private firms, and in certain sections of the Civil Service. This includes practice in surveying, design, training in maintenance and repair of electronic equipment and, in a few instances, training in the major trades. Some non-formal training is provided by voluntary effort and in a sense might be considered traditional and a family legacy. Such training includes skills in the making of shell-work,scale work, straw-work, embroidery and crochet work.

Commonwealth Pacific/Indian Ocean

FIJI

Formal technical and vocational education is mainly provided at tertiary technical institutes to meet the manpower requirements of industry. The courses are structured to provide training and skills leading to various levels of certification. In addition to technical institutes there are other centres and also secondary schools geared to providing vocational training at a somewhat lower level. The Fiji National Training Council also provides training in a somewhat different form. The primary objective of technical institutes is to provide skilled manpower to industry for economic growth. One of the main elements of formal technical and vocational training is the apprenticeship scheme. The scheme provides the necessary machinery for the training of apprentices financed by employers. The apprentice is protected from being exploited and is paid in accordance with an approved pay guideline. All apprentices are registered and required to attend some or all of the following classes for training; full terms, block release, day release, sandwich and evening. Almost 90 per cent of the students attending technical institutes are registered apprentices. The remaining 10 per cent or so are private students.

The Fiji National Training Council (FNTC) - a statutory body whose training approach is different from the technical institutes is the other major body. The FNTC conducts courses of shorter duration, lasting from a few days to several weeks. The main objective is to provide courses for up-grading skills in particular disciplines. They may be termed refresher courses and are provided in several centres. The FNTC funds its activities through a one per cent levy system. Training is also provided by some high schools, specialised institutions for the under-privileged and privately owned commercial schools. These institutions either provide their own training programmes or follow courses developed by recognised foreign organisations such as the Royal Society of Arts. Where local prescriptions are followed, students are examined and certificated by the Fiji National Training Council. These institutions provide trade training at a lower level.

Non-formal education and training is provided by a number of agents such as the FYCA, youth groups, religious bodies and several government ministries. The courses are both ad-hoc and structured in nature, lasting from a few weeks to several months. The present non-formal multicraft programme provides the much needed technical and vocational education and training for young men and women who are unable to follow an academic programme or cannot have access to tertiary technical institutes for formal training.

KIRIBATI

The Ministry of Education, Training and Culture established a pilot project of Community High Schools in 1976, which sought to introduce a new concept of integrated education for young people on the out islands. The objectives of this project were to enable young people to be educated and trained in appropriate skills which would equip them to lead a fuller life in a subsistence environment. In 1980 after an evaluation of the Community High Schools the project was stopped in favour of a more academic curriculum. However, within the framework of skills training, the new primary schools have absorbed into their curriculum the traditional and community skills training element from the original project.

The Tarawa Technical Institute is the focal point for nearly all training in Kiribati concerned with engineering, construction, English, business studies and public sector training. With respect to craft training, Kiribati adopted a traditional pattern of apprenticeship training in 1973. However, it soon became apparent that such a system of training, relying heavily on the transfer of skills and knowledge taking place on the job was basically alien to the Kiribati culture. Furthermore the main body of personnel employed in craft occupations were themselves not competent to undertake the role of training on-the-job. Therefore a more flexible system of training, which would accommodate the changing pattern of skills required, provide further training for the existing workforce and provide a recognised programme of training for new entrants into craft occupations was sought. Hence in 1977 the Contract of Service normally associated with an apprenticeship scheme was replaced by a Contract of Training based upon a modular system of training. With the introduction of this concept three levels of skill have been identified. It is anticipated that these three levels will eventually form the basis of our occupational skill standards and certification programme.

In 1979 the Institute established a department of Appropriate Technology primarily concerned with projects focusing on the basic family unit seeking out problems and providing solutions to satisfy the basic needs of the family group. It was felt that such an approach would improve living standards, create internal development, promote an exchange of skills at village level and encourage self reliance. Such projects are not based on new metropolitan concepts, but are aimed at improving existing ways, and removing complex skill factors in the manufacturing process. Earlier this year the Institute conducted its first ten week training programme for out island community leaders in appropriate technology. The programme aimed to enable individuals to acquire the skills necessary to introduce and undertake various projects which had been developed at the Institute at the request of island communities. Many of these projects have been translated into training booklets, including many pictures and illustrations for use by relatively unskilled people.

As the department develops the Institute will become a practical training centre for teachers and community group leaders who wish to develop appropriate technologies in their schools and islands. Such projects already include low-cost housing, water storage systems, pumps, roof sheeting, coconut graters and furniture. Introduction of new technology and skills training at village level is not an easy task. Many cultural factors tend to work against the concept of change. Sharing or exchange of skills at village level is not common in Kiribati culture. These facts illustrate that the rate at which change takes place is an indeterminate variable, and highly dependent on individual attitudes. Whilst every parent wishes their child to have an equal opportunity to enter the wage earning sector the majority must look forward to a subsistence way of life on their islands. From 1977 to 1980, 1,386 boys and 1,307 girls have left school and have no opportunity to enter the wage earning sector, except copra cutting or fishing, both subsistence occupations. The future does not hold any real promise that the situation will improve. The rejection of Community High Schools has now led many to advocate the establishment of a Community Development Centre on each island. Such a centre, it is anticipated, will become a focal point for the community; embracing such areas as programmes of training for out-of-school youth, adult education and general community programmes undertaken by community workers. It would also be identified as the centre for mobile training teams to carry out their programmes.

MAURITIUS

The Industrial Trade Training Centres have been established to meet the short and long-term requirements of industry in Mauritius. Short-term requirements are met with full-time short courses of variable duration in selected trades for unskilled, semi-skilled and skilled workers in industry. Long-term requirements are being met with full-time basic craft courses of one year's duration. The basic courses are mechanical engineering, craft practice, electrical installation and maintenance, auto-mechanics, welding and metal fabrication, plumbing and pipe fitting, carpentry and joinery, masonry and concrete work, maintenance fitting, tractor mechanics, upholstery, sheet metalwork and cabinet making.

Handicraft (vocational) training is provided in five vocational centres in the following trades: leathercraft, woodwork, dressmaking, embroidery and basketry. The training period is of 18 months for girls and two years for boys. The level attained by the trainees at the end of their programme is that of a craftsman.