PRESENTATION OF COUNTRY PAPERS

Background papers about technical education and industrial training in their countries had been submitted in advance of the seminar by governments or appropriate officials for India, Bangladesh, Sri Lanka, Singapore, Fiji, Hong Kong, Brunei, Papua New Guinea, Malaysia and New Zealand. A paper "Some Main Features of Country Papers" had been prepared by the Commonwealth Secretariat. Delegates from the Solomon Islands, Western Samoa and Tonga presented some information orally. At the Chairman's invitation, the observers from Nigeria, the ILO and the WCOTP also spoke. The following summaries include remarks made by several delegates only to expand or comment upon background papers and should therefore not be read as complete statements.

Hong Kong

The Chairman himself, as Director of Education, Hong Kong, presented the country paper for Hong Kong. He said that the Hong Kong Training Council, directly and through two industry training boards and other committees, promoted technical education and industrial training. It carried out manpower surveys, set up training authorities as in the clothing and construction industries, and laid down job standards for a wide variety of technological, technician, craft and operative jobs. The Apprenticeship Ordinance of 1976, which made attendance at part-time technical education compulsory for all apprentices in some designated trades, was a big step forward in promoting technical education. In Hong Kong the two universities and the Hong Kong Polytechnic provided education for technologists, the last for technicians as well; while the three technical institutes provided education for technicians and craftsmen. The Hong Kong Technical Teachers' College produced qualified teachers for the technical institutes and for commercial/technical subjects in secondary schools. The establishment of an Industrial Centre at the Hong Kong Polytechnic, in which the students received industrial training in a factory-simulated situation, and the revision of syllabuses to cope with the requirements of local industry, were other important steps being taken to bring about an improvement in quality.

Mr Paul Lim was invited to supplement Mr Topley's statement, and referred to the importance of technology transfer. In his opinion one of the ways this could be brought about was through joint ventures in the business world; it was interesting to observe how developing countries had absorbed technical knowledge from developed countries in this way. His own businesses, for example, had five joint ventures - three with Australians, one with Americans, and one with Japanese; through this means of co-operation, engineers learnt the appropriate specifications, methods of assembly, etc. Mr Lim wondered whether, if Junior Secondary School leavers went on to apprenticeship training and Senior Secondary School leavers to technician training, the general educational system should be more

clo ely geared to their requirements. If so, this would immediately give rise to a big problem of training sufficient teachers of technical subjects.

Bangladesh

Mr Azad summarized the paper presented by Mr Faizul Kabir and himself. He said that education in Bangladesh had been shaped by legislation and successive National Plans, originally of the Government of Pakistan and after 1971 of the new People's Republic of Bangladesh Government culminating in the "First Five-Year Plan of Bangladesh, 1973-1978", and the "Report of the Education Commission 1974". Primary education began at the age of six and went from Grades 1 to 5, secondary education taking pupils as from Grades 6 to 10. At Grade 9 a pupil could opt for either humanities, science, commerce, industrial arts, home economics or agriculture. Primary enrolment in 1972-1973 was 600,000 and secondary enrolment 170,000.

There were 18 Polytechnic Institutes with an intake capacity of about 3,300, admitting students after Grade 10 and training them for three years. Thirty five Vocational Institutes, with a second shift trade programme in 13 Polytechnic Institutes, had a total intake capacity of 2,200; these admitted students after Grade 8 for 2-year trade training or after Grade 10 for 2-year highly skilled trade training. All these were controlled by the Directorate of Technical Education, under the Ministry of Education. The Directorate of Labour also ran a few institutional training centres, viz: five Technical Training Centres and a Marine Diesel Training Centre; an Industrial Relations Institute; and four vocational guidance and youths employment units. This Directorate also supervised apprenticeship training programmes run in different industries.

Mr Azad then explained the system of budgeting and allocating capital and recurrent funds for the technical institutions, and mentioned that external aid was controlled and co-ordinated by the Planning Commission, also that about 60% to 70% of students received scholarships or stipends from the institutions themselves, from Secondary Education Boards, from District Councils, or from charitable bodies.

As regards the national organizational framework, Mr Azad said there was an autonomous board, the Technical Education Board, which formulated policies regarding examinations and standards of education, conducted the examinations, and awarded diplomas and certificates; this Board included representatives of other agencies and of industry. It had been decided that a Council of Technical and Vocational Education as proposed at the Colombo Plan Seminar in 1975 would be set up. The Planning Commission already referred to, under the Ministry of Planning, was entraced with the overall planning of economic and social development in the country. Manpower surveys were done by the National Manpower Council, Central Statistical Bureau, Labour Department and Planning Commission.

Brunei

Mr Benyon presented the Brunei paper. He told delegates that about 95% of government revenue came from the petroleum and related industries and that the government was aiming at diversification in such areas as plywood manufacture and urea production. In 1970 two new technical schools were established to train skilled manpower to take over, gradually, work done by the imported labour force. The system of technical education was closely

geared to the examinations of the City and Guilds of London Institute, but a local examination system was being established. The problems included deciding on a language for instruction, a serious shortage of qualified teachers for technical subjects, and the small number of suitable students for the technician courses. At present almost all the teaching staff members in the technical schools were expatriates (mostly from the United Kingdom, with some from Malaysia and Hong Kong). It was very difficult to find technicians in the electrical engineering and telecommunications fields.

Fiji

Dr Swamy introduced Fiji as a country of islands, having a population of some 600,000 and a mixture of races, which became independent in 1970 with Queen Elizabeth II as Head of State. The school system had recently been changed and included a six-year primary course followed by junior secondary (forms 1 to 4) and higher secondary (forms 5 to 6). The junior secondary course was Fiji-based whereas the forms 5 to 6 course was New Zealand-based, except for the subject of English in which an optional paper was set. Completion of form 6 led to university entrance.

Fiji had one Technical Institute, which had courses at trade, technician and sub-professional levels. Previously courses were geared to the use of City and Guilds examinations, but recently an attempt had been made to rationalize courses and make them more relevant to the needs of Fiji. The University of the South Pacific, a regional institution, had only social studies faculties to date but it was hoped that an expansion of facilities would attract students from other regions.

Dr Swamy identified one of the major problems as being a lack of long-term planning in industry, which at present was mainly financed from overseas. There was a Fiji National Training Council, which imposed a 1% levy on the earnings of industrial concerns, but co-operation from industry in establishing training schemes was far from satisfactory. The responsibility for technical education for a country of 600,000 people rested mainly with the Ministries of Education and Labour, and both were trying to assist industry by identifying training needs through a number of training boards.

The great need in Fiji was for technicians in servicing areas for the major industries, but the geography of the country, with its many small islands, made it difficult to organize courses which could be attended by people living far from the training. Block-release courses of six weeks duration, shorter three-week courses, and day-release training for city areas, were now organized.

Dr Swamy said that some difficulty had been experienced because a number of overseas agencies were keen to donate equipment or to promote projects which were not fully in the interests of the country. In general, Fiji knew what was required, and every attempt would be made to ensure that technical education suited the needs of the country.

India

Mr Reddy, in presenting his country paper, first described the present pattern in India of ten years' general education, consisting of seven years' at the primary level, three years at the lower secondary level, and two years of higher secondary, with diversification, to relieve pressure on universities, into technical education and vocational education. Over 300 technical institutions provided technician courses for some 50,000 students.

One important problem arising from a quantitative expansion was to train sufficient teachers. Several measures had been implemented, including attractive terms of service and salaries, but some problems still remained in the overall task of training some 15,000 teachers. There was a period of over-production of technicians and several programmes had been launched to remedy this situation. There was also a need to improve curricula as a means of improving quality, and to educate industry about the importance of employing better qualified personnel.

Malaysia

Syed Kadir Al-Junid explained that technical education in Malaysia had changed considerably after 1964, when it became clear that it was necessary to look into the educational structure for technicians. The educational system was now such that, following a six-year primary course, students went on to a three-year lower secondary course, which included vocational subjects for those wishing to study such subjects. A two-year upper secondary course was divided into vocational, technical or general education. Students in the upper secondary vocational courses were intended to fill the need for skilled labour while those from the upper secondary technical courses proceeded to one of the two Polytechnics, established in 1969 and 1976 respectively. The Polytechnics trained technicians through a series of two-year courses, while higher-grade technicians for architecture and building industries were trained at the MARA Institute of Technology. Technologists were also trained at the University of Malaysia and the University of Science in Penang.

The main problem was one of staff shortages, a problem shared by many other countries. Malaysia was largely an agriculture-based country (rubber, palm oil), and exports included raw materials which were re-purchased after processing. The government had established Free Trade Zones in order to encourage overseas agencies to establish industrial undertakings, and technical personnel for car and electronic assembly plants and for the petroleum/palm oil/tobacco/steel industries were in short supply.

Little co-operation with other countries had been achieved so far. Practically no private company had an industrial training programme, but the public sector had well-established programmes. The colleges of technology found it very difficult to arrange practical training facilities for students. Various advisory committees had been established, but these also faced difficulties in arranging training with private industry and this remained a problem to be overcome.

Papua New Guinea

Mr Mummery said that Papua New Guinea was very much in its infancy in the development of technical education, following the country's independence from Australia in 1975. Some apprenticeship training had started in 1968, but with a country having some 250,000 children entering primary school and only 31,000 remaining after the six-year primary course, there were inevitably many problems to be solved. One of the main problems was one of language; it had been decided that English was the common language to be used.

At present seven technical colleges plus two vocational training institutions had an enrolment of some 3,500 students; the intake had been from form 2, but this was changing and in future it could be from the post-form 4 group. Of the 3,500 at present enrolled in technical colleges, it was a matter of some concern that only about 20% would follow a technical career. This problem arose because the Apprenticeship Act made obligatory a ratio of one tradesman to one apprentice. This legislation was now being revised. An attempt had been made to make the existing junior high school - type of technical college serve the needs of the community better by establishing for each college boards of studies which included people co-opted from industries connected with the subjects taught. It was hoped to improve the technological content of curricula and develop co-operation with industry in this way, and much had been done as a result of the establishment of these boards. The financial framework provided for all salaries of lecturers and teachers to be paid by Government; of 265 staff only 47 were from Papua New Guinea, not an ideal situation.

An agreement had just been reached with the World Bank for a A$1.5 million loan for the development of technical education, and a building programme had been agreed for the improvement of technician training. It was also planned to devise courses of training of one-year duration, involving 75% practice and 25% theory, for a form 4 intake, from which the student would enter an apprenticeship scheme. Mr Mummery said the intention was that no one would enter technician training without completing an apprenticeship.

Singapore

Mr Toh introduced Singapore as an island country with a population of over 2.2 million crowded into an area of less than 600 sq.km. A Technical Education Department had been established in 1968 with responsibility for promoting technical education in schools and institutes. In 1973 this Department had been dissolved and an Industrial Training Board set up to train skilled workers for industry.

Secondary education, after a 6-year primary education, was of 4 years' duration; two years lower and two years higher. In the first two years, the lower secondary section, 50% of girls and all boys were exposed to some form of technical education, the main subjects being metalwork, woodwork and electricity. At the end of the 2-year lower secondary course the students were given an aptitude test and, owing to inadequate facilities, about one third of the leavers would be admitted to pursue technical education in the upper secondary course. A co-operative workshop scheme was adopted in the upper secondary education system so as to maximize the utilization of workshop facilities, with 22 secondary schools servicing another 71 schools without workshops. Fifteen centralized workshops served 104 schools without workshops in the first two years of secondary education.

The Industrial Training Board aimed to train skilled manpower for industries and the building trades. Nevertheless, parents and students did not favour building trade courses, and skilled manpower in the building trades had to be imported. There were Trade Advisory Committees to plan courses, formulate syllabuses, select equipment for institutions, etc.

Sri Lanka

Mr D. Amarasinghe said that Sri Lanka a country of 25,000 sq. miles with a population of 15 million, had a well-developed education service with 90% of children in school. Even so, the system was undergoing rapid change and since 1972 primary education had been of 5 years' duration followed by a 4-year junior secondary course and a senior secondary course of 2 years. The junior secondary courses were unstreamed and included pre-vocational studies not designed to train craftsmen but merely to make students aware of work. Craft training commenced at the end of this junior secondary course and technician training at the end of the senior secondary course. Sri Lanka had 7 Polytechnics for the training of technicians and 8 Junior Technical Institutes for the training of craftsmen. Three independent bodies, the Ministry of Education, the Labour Department and the National Apprenticeship Board, were involved in the training of craftsmen and technicians, and industrial training was undertaken by the National Apprenticeship Board. Because three independent bodies were concerned, there was some duplication of effort and no one body co-ordinated the work, which sometimes gave rise to problems.

Sri Lanka had an unemployment problem, with many technicians unable to find a job appropriate to their training. As a result, new programmes of technician training, more broadly based, were being introduced, devised to train technicians to fit any job opportunity. The National State Assembly was responsible for financing education and the National Apprenticeship Board received funds from this source.

Western Samoa

Mr Holmes spoke for Western Samoa, and said that this group of small islands situated roughly 2,000 miles north of New Zealand had a total population of about 150,000, the majority of the manpower being employed in agriculture. There was no large private industry. Western Samoa became independent in 1962, and as part of an independence gift the New Zealand Government built, equipped and partly staffed a small "Trades Training Institute". The emphasis was on practical skills and a few local craftsmen were employed as workshop instructors.

About three years ago it had been decided to turn the institute into a Technical College by adding more buildings and offering more subjects, including commerce and domestic science. However, although one more workshop block was added in 1973, technical education in its present form was not started until January 1975. All courses were full-time and two years' duration and in 1976 all students were recruited from form 5 secondary streams.

The first stage of development, the Trades Section, was expected to be completed by the end of 1977 and it was hoped that the commerce and domestic science departments could be started shortly afterwards.

Technician training would be started only if the developing of the proposed Industrial Free Zone materialized.

About three years ago an apprenticeship scheme had been started but this was not working very well for reasons experienced by many developing countries, the main reason being the lack of trained craftsmen to supervise the apprentices. The two years spent at the Technical College was counted as one year of the four-year apprenticeship.

The main problems at present were a lack of trained instructors, a shortage of money, and students starting with absolutely no previous practical training.

Solomon Islands

Mr Alan Hatfield, a delegate from the Solomon Islands, said that compared with the programmes of many countries represented at the seminar, the Solomon Islands technical education programme was relatively small. However, it shared many of the problems mentioned by other delegates. Although trained persons were needed in most of the disciplines the number required in any particular discipline were too small for the Solomons to mount courses to meet its own needs alone. A policy of regional co-operation had therefore been adopted, taking into account the needs of other territories in the region covered by the South Pacific Commission, thus making it possible to offer a range of courses on an economic basis.

This programme relied to a great extent on support from international agencies and other countries. Examples of this were the Marine and Trade Training Programme set up with the help of the ILO in 1969 and the Survey School recently set up with the help of the New Zealand Government on a regional basis.

In common with other developing countries the Solomons were experiencing difficulty in attracting suitably qualified students to enter upon a technical career. There was still a marked tendency for the more able student to select a white-collar career.

The training of technical teacher was also a problem, too few were available or willing to take up a career in the teaching profession, and of those who had qualified, none were now serving as teachers because their training and expertise had enabled them to find better rewards and careers in commerce or industry.

In short, there was a mixture of problems which could only be solved by a combination of self-help, co-operation with other territories in the South Pacific Commission region, and assistance from other countries and international agencies.

Tonga

Mr Tevita Pilimilose'Aho said that no country paper had been prepared for Tonga because there were no technical institutions in the country. Tonga was a very small island in the Pacific, 99 square miles in area, with a population of only 90,000. The problem of training teachers for technical education was all-important because experience had shown that, even with the co-operation of other territories in training personnel, when the trainees returned to

Tonga they invariably found their pay inadequate and tended to go overseas again. Mr Aho emphasized that one of the main problems in Tonga was a lack of finance to establish training institutions and that more co-operation was needed from neighbouring countries.

Nigeria

Dr Ajayi said that he had noticed in the country papers many things that appeared relevant not only to Nigeria but to other African countries as well. He had noted the references to industrial training boards and councils, and was pleased to say that similar schemes had been started in Nigeria some four years ago. He referred to the important role of the consultants at the present seminar, and hoped that the recommendations which they would assist the seminar to formulate would be implemented in as many countries as possible. The importance of co-operation between countries could not be over-emphasized and the sharing of experiences should have the highest priority.

ILO

Mr Robert Campbell reminded the seminar that the ILO, founded in 1919, with its headquarters in Geneva, was tri-partite in structure, representing the interests of employers, governments, and the workers themselves. By having a tri-partite structure, it was in a good position to assist national planning and the development of curricula, and to undertake the various training programmes in which it was involved. Mr Campbell also drew attention to the International Labour Conference's 1975 Recommendation 150 referred to in the last paragraph of the Lead Paper "Recommendation concerning Vocational Guidance and Vocational Training in the Development of Human Resources"; and made a copy of this available to the seminar.

WCOTP

Mr M.C. Fong said over 130 countries were affiliated to the WCOTP, which had close relations with ILO and UNESCO. One of the main objectives of WCOTP was to uphold teachers' rights, including of course those of technical teachers. He said that it was generally agreed that teachers were under-paid the world over, and it was one of the functions of WCOTP to make every attempt to ensure that teachers' pay scales were increased appropriately; this was important to technical education because of the need to encourage teachers to remain in that field.