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Chairman: Mr. Jorge Pablo FERNANDINI  
(Peru).

## AGENDA ITEM 44

The role of the United Nations in training national technical personnel for the accelerated industrialization of the developing countries (continued) (A/6703 and Corr.1, chap. X; A/6855)

1. Mr. KOCHUBEI (Ukrainian Soviet Socialist Republic) said that his country was making great efforts to help the developing countries in training national technical personnel. In the 1966-1967 academic year, over 4,500 foreign students had attended higher and intermediate Ukrainian educational institutions and hundreds of specialists from developing countries received further training in Ukrainian enterprises each year. The Ukrainian SSR also sent highly qualified teachers to educational institutions in developing countries and supplied the latter with textbooks, visual aids, laboratory equipment, etc. Most of that assistance was provided under bilateral agreements, but the Ukrainian SSR also participated in training programmes organized under United Nations auspices and hoped to increase such participation in the future. For example, in 1965, 1966 and 1967, the United Nations Centre for Industrial Development had organized five-month training courses for metallurgists at Zaporozhe in the Ukraine, which had been attended by fellows from many countries.

2. Despite the efforts of the United Nations bodies concerned, however, the economic development of the developing countries was not proceeding at a satisfactory pace. One reason for that situation was the lack of qualified national technical personnel at all levels, and the United Nations Development Programme (UNDP) and the United Nations Industrial Development Organization (UNIDO) should therefore pay due attention to the training of such personnel.

3. The developing countries' difficulties were being compounded by the brain drain problem, for after those countries and the United Nations had invested substantial sums in training highly qualified personnel, the individuals concerned often emigrated to the industrialized countries, particularly to the

United States and the countries of western Europe. For instance, according to the September 1966 issue of the Chilean publication, *Desfile*, more than 19,000 highly qualified Latin Americans, whose training had cost their countries over \$400 million, had emigrated to the United States during the preceding five years. The June 1967 issue of *Management Today* stated that, between 1949 and 1964, approximately 85,000 foreign scientists had emigrated to the United States. Of the Asian students studying in the United States, 90 percent remained there after completing their training. According to a statement by the United States Secretary of Commerce, 70 per cent of the trained personnel who had entered the United States in 1966 had come from developed countries and 30 per cent from developing countries. The latter figure might, however, have represented a large percentage of those countries' reservoir of trained personnel. Similarly, the United Kingdom doctors who emigrated to the United States were replaced by doctors from India and Pakistan who were sorely needed in their own countries. The developed capitalist countries were thus profiting from the services of skilled personnel whose training had been financed by the developing countries.

4. The Advisory Committee on the Application of Science and Technology to Development had drawn attention to that problem in its third report,<sup>1/</sup> but it was not mentioned in the Secretary-General's reports (E/3901/Rev.1 and Add.1 and 2 and A/6855). The United Nations should make a thorough study of the question and recommend corrective measures. It should assess the extent of the brain drain from developing countries during the first half of the United Nations Development Decade, study its causes, evaluate the damage to the developing countries and the profits accruing to the developed capitalist countries. It should also study the possibility of the latter countries compensating the former for the use of their trained personnel.

5. It was encouraging to note that the Economic and Social Council, in operative paragraph 3 (d), of its resolution 1274 (XLIII), had requested the Secretary-General to report to it at its forty-fifth session on the progress made in studies carried out by interested organizations in the United Nations system on the brain drain problem. That should encourage the Department of Economic and Social Affairs and the specialized agencies concerned to focus their attention on that problem within the context of the general problem of the training of national technical personnel in the developing countries.

<sup>1/</sup> Official Records of the Economic and Social Council, Forty-first Session, Supplement No. 12 (E/4178 and Corr.1).

6. On the other hand, it was disappointing that the report requested in General Assembly resolution 2090 (XX) had not been prepared because only four Governments had submitted comments on the Secretary-General's report (E/3901/Rev.1 and Add.1 and 2). The replies received should, however, have been published. It was surprising that so few Member States had responded to the requests and that the United Nations Secretariat had not shown greater activity in the matter. It was also surprising that the specialized agencies, the International Atomic Energy Agency (IAEA), UNDP and the regional economic commissions had not commented on the report, although also requested to do so in General Assembly resolution 2090 (XX). If the United Nations Secretariat had made greater efforts, a report giving some idea of the action taken during the first half of the United Nations Development Decade might already have been available; he hoped that such a report would be submitted to the General Assembly at its twenty-third session.

7. Mr. NENEMAN (Poland) said that Poland had learned from its own experience that the development of human resources was one of the most important factors in economic development. The developing countries should be helped to speed up the training of their national cadres, for reliance on foreign experts prolonged their economic subservience to the developed capitalist countries and demoralized local personnel.

8. The brain drain from developing countries was becoming a serious problem. According to a recent issue of the United States periodical, *Business Week*, of the nearly 10,000 professional workers who had emigrated to the United States in 1966, 129 had come from Africa, 807 from Latin America and 2,736 from Asia. Those figures were alarming, especially since they were increasing every year. According to the same periodical, 40 per cent more individuals with technical training had emigrated from poor nations in 1966 than in 1965. Furthermore, some estimates showed that two-thirds of the students from developing countries who studied in western Europe and the United States never returned to their home country. United Nations fellows were usually required to return home, but many bilateral programmes did not impose that condition.

9. The United Nations should study the whole problem and recommend remedial measures. The best solution would be to train students in their own countries, and foreign assistance should therefore be concentrated on training the necessary teachers. When there was no alternative to training abroad, students should be required to return to their own countries. One solution, adopted by Poland and other socialist countries, was to offer fellowships for allocation by the Government of the developing country concerned, thus enabling that Government to control the situation and also to plan for the future employment of students.

10. Post-graduate courses for mature and experienced persons were one of the most useful forms of training. Poland had acquired considerable experience in organizing such courses and was ready to share it with other countries. Since 1962, for example, it had organized annually, in co-operation with the

United Nations, a short advanced course in national economic planning. It had also organized a post-graduate course in town and country planning. Both courses were given in English and had been attended by persons from nineteen developing countries. In-plant training courses represented another useful forms of training. In co-operation with UNIDO, Poland had organized such a course for textiles specialists, with very encouraging results.

11. Mr. LOBANOV (Union of Soviet Socialist Republics) said that the international community was at length beginning to realize that the lack of trained national personnel in many branches of the economy was just as much an obstacle to the poorer countries' economic progress as the shortage of development capital. The development plans of those countries were being severely affected by the acute shortage of trained technicians and engineers. It had been estimated that, at their existing level of development, the developing countries required a total of 12 million intermediate-level technicians; if they were to overtake the developed countries, a total of 55 million would be needed. A similar estimate of the numbers of technical personnel with university or equivalent training showed that the developing countries' requirements were 11 million, 10 million of whom should be specialists in scientific and technological subjects.

12. The situation had become more acute in recent years as a result of the increasing emigration of technicians and scientists to the United States and other Western countries. A number of articles were appearing on the subject of the brain drain in the United States itself and a Congressional Sub-Committee had recently published some very disturbing findings on the subject. It appeared, for example, that doctors, scientists and engineers from the developing countries had constituted 46 per cent of all immigrants into the United States in 1966, as compared with 33 1/3 per cent in 1956, and that the total number of trained personnel in those categories who had emigrated to the United States in 1966 was 4,390. The magnitude of the loss to the developing countries of Africa, Asia and Latin America was illustrated by the fact that the training of those 4,390 emigrants alone had probably cost at least \$88 million. The problem was, of course, a complex one and was influenced by a variety of political, economic, social and legal factors, as the concern of certain developed countries about their brain drain showed. It should therefore be given high priority in the research and operational programmes of the United Nations and the specialized agencies concerned.

13. His country was continuing to place its fifty years' experience of economic development at the service of developing countries by providing training for technical personnel both in those countries and in the USSR. In 1966, some 16,500 Soviet specialists had been engaged in such training activities. Moreover, under the training programmes organized by his country, the trainees were able to put their skills to work in their own countries on completion of their training. For example, in the course of the bilateral iron and steel project executed by the USSR at Bhilai, India, approximately 10,000 local technicians and workers had been trained. Similarly, 12,000 local technical personnel had been trained in connexion

with the Aswan Dam project in the United Arab Republic, and 40,000 technicians and specialists during the implementation of USSR constructional programmes in Afghanistan. The competent ministry in the latter country had, in fact, decided to adopt Soviet training methods in all spheres of science and technology. In all, over 120,000 specialist workers from developing countries had been trained under his country's training programmes.

14. His country also co-operated actively in United Nations training programmes and organized a number of seminars each year in connexion with the economic development of developing countries. It was regrettable, however, that the assistance potential of his country was not being utilized as fully as it might be under existing programmes.

15. Co-operation among developing countries in manpower training was still in its infancy. A recent conference of African and Asian scientists on regional co-operation in the utilization of scientific and technological advances was a step which the United Nations and its specialized agencies could usefully emulate by organizing regional seminars on the training of national technical personnel.

16. His delegation hoped that the Committee would act on the Secretary-General's suggestion that the Governments of Member States should again be invited to submit their comments on the report on training of national technical personnel for the accelerated industrialization of the developing countries (E/3901/Rev.1 and Add.1 and 2). The analysis of the replies of Governments would provide a practical basis for an intensified programme of assistance for training purposes to be implemented by UNDP and UNIDO.

17. Mr. ASLAM (Pakistan) said that the importance of the question under discussion had been recognized in various United Nations decisions, including General Assembly resolutions 1824 (XVII) and 2090 (XX) and Economic and Social Council resolution 1274 (XLIII).

18. He shared the view expressed by the Secretary-General in his report, that one of the basic problems involved in the generation of industrial skills was the lack of co-ordination or proper linkage between what was required by industry and what was supplied by the educational system (A/6855, para. 5). His delegation had noted from that report the various forms which UNIDO training assistance could take, and hoped that the Executive Director would pay special attention to that aspect of UNIDO's work. That organization and its predecessor, the Centre for Industrial Development, had played a useful role with regard to training, but as the developing countries attained a higher technological level, training would have to be provided in more sophisticated fields. The advanced training of a selected few did not solve the problem; each country should be enabled to train a large number of technical personnel in selected sectors of sophisticated industries requiring a high degree of technical know-how. UNIDO's efforts in that respect were still at the initial stage.

19. The provision of training could also be improved by adopting a regional approach. Countries in the various regions should be able to pool their resources and, with the help of UNIDO and the specialized agen-

cies concerned, draw up an in-service and in-plant training programme that would meet the region's training requirements.

20. In view of the limited number of comments received on the report of the Secretary-General (E/3901, Rev.1 and Add.1 and 2), he supported the Secretary-General's suggestion (A/6855, para. 3) that the General Assembly should again invite Governments to submit their comments on that report. His delegation proposed that that recommendation should be included in the Committee's report.

21. Mr. ABEL (United States of America) said that the Secretary-General's report (A/6855) provided a useful outline of UNIDO's proposed programme for the training of national personnel for industrialization. As President of the United Steel Workers of America, he personally was greatly interested in the measures described in that document and in the comments and recommendations of the other agencies and bodies involved.

22. His Government believed that a review of the comments and recommendations received concerning the Secretary-General's report (E/3901/Rev.1 and Add.1 and 2) should not be undertaken until the report had been considered by the Industrial Development Board and additional comments had been received from Governments. The subject was, indeed, so important that the views of all were essential in order to strengthen the programme of industrial training.

23. In the matter of human resources, his own country, despite the high degree of technological advancement which it had achieved, was still confronting problems not unlike those of the developing countries. Government authorities, the steel industry and his own trade union had found it necessary to embark on a massive pilot training programme in order to close the gap between the vastly accelerated modernization of the steel industry and the current level of development of human resources. It had been proved that fundamental education—literacy, workers' education, industrial hygiene—was a prerequisite for all industrial workers, whatever their level of responsibility. His delegation accordingly urged that, although both UNIDO and the International Labour Organisation (ILO) had rightly concentrated their main effort on the middle-level training so important for industrial production, the former organization should not overlook the considerable opportunities that existed for inter-agency co-operation in training projects. The World Health Organization (WHO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Food and Agriculture Organization of the United Nations also had useful roles to play. Only integrated projects would enable the developing world to make full use of advanced plant design, machinery and automation.

24. His experience led him to believe that higher productivity could as often be achieved by enlightened use of manpower as by heavier investment in new plants. Obsolete techniques of training and education, requiring unduly long years of training for skilled workers, were still being applied in factories where the most advanced equipment was in use. Accordingly, he urged that every effort should be made to develop

practical modern techniques of manpower development which required the least possible expenditure of time and resources. His Government and the United States trade union movement in general were prepared to support all co-operative efforts to that end, as they had supported the work of the ILO in the past and would assist UNIDO in the future.

25. Mr. HOGENDORP (Netherlands) said that the question under discussion directly affected the economic development of the developing countries, since their industrialization would depend on the availability of skilled managerial and other personnel. The solution to the problem of training higher-level personnel need not have the same character or priority as the solution to the problem of training lower-level personnel; the latter problem was of more immediate urgency, since, at least for the time being and if requested, managers and technicians could be provided by industrialized countries as technical advisers or experts. While it was true that, in many industries, lower-level personnel could be trained and educated in a very short time, experience had shown that such rapid training was not the best or most profitable way of acquainting unskilled workers with a new job, since workers so trained were less familiar with the work being done in the plant as a whole, a situation which might lead to certain forms of social unrest and lower productivity.

26. Vocational training at all levels was of primary importance, but required several years for its completion. An alternative was the establishment of training courses followed by a system of apprenticeship.

27. An important role in training technical personnel for accelerated industrialization in the developing countries could be played by UNIDO in co-operation with other specialized agencies. His delegation fully agreed that the ILO was doing important work in that respect, but the role of UNESCO should also be stressed. In that connexion, he referred to the suggestion made by his delegation in the Second Committee (1118th meeting) and in the Industrial Development Board regarding multi-agency projects.

28. The process of industrialization must start with the training of workers with appropriate education and enthusiasm for their work. Many developing countries whose economies were mainly dependent upon agriculture were undergoing rapid change, and had to achieve a harmonious transition to industrialization. The Netherlands had gone through such a process of transition and was willing to share its experience with developing countries. It had tackled the problem of vocational training as part of its industrialization programmes, and progress had been achieved and experience gained through the establishment of a federation for the promotion of lower-level technical education.

29. The question of training national technical personnel was perhaps even more important than the flow of capital assistance in accelerating the industrial development of developing countries, and most of the problems he had outlined could usefully be discussed in greater detail at the forthcoming International Symposium on Industrial Development. Another ques-

tion of major importance to the developing countries was the problem of the brain drain, which was already beginning to affect industrialized countries as well.

30. Mr. POSNETT (United Kingdom) said that the Committee would no doubt discuss the question of technical training for industry when the report of the Industrial Development Board and UNIDO's revised work programme were before the Committee.

31. His delegation had noted with interest the Secretary-General's report (A/6855), but it wished to stress that industrial training plans must be carefully related to over-all national economic development plans. The importance of rural development was obvious, especially in view of the urgent need to increase food production and the limited employment opportunities which could be provided by industry in the developing countries. A proper balance should therefore be maintained between industrial and agricultural training.

32. Since facilities for industrial training already existed in many developing countries, the first step to be taken should be to ensure that they were fully and profitably used. In some cases, it might be more economical to extend existing facilities than to start new projects, and UNIDO, in co-operation with other specialized agencies, and particularly the ILO and UNESCO, had an important part to play in that connexion.

33. The United Kingdom was directly affected by, and deeply concerned about, the brain drain problem, and his delegation might wish to revert to that issue, on which it had just received a detailed study, at a later stage.

34. The United Kingdom was already providing training in various industrial fields, such as electrical and mechanical engineering, vehicle engineering and the chemical industry, for considerable numbers of students from developing countries. About 10,000 trainees were currently under training in United Kingdom firms, and the Government had drawn up a scheme to increase the opportunities in that field still further.

35. Mrs. TANCO DE LOPEZ (International Labour Organisation) said that the ILO was gratified by its co-operation with UNIDO in the training of national technical personnel for the accelerated industrialization of the developing countries. The Secretary-General's report (E/3901/Rev.1 and Add.1 and 2) had been drafted in co-operation with the ILO and UNESCO, and those agencies, together with others, had also co-operated in the preparation of the Secretary-General's report on development and utilization of human resources in developing countries.<sup>2/</sup> With regard to technical training, which formed an important part of its operational activities, the ILO worked in close co-operation with UNIDO; an example of that co-operation was the joint preparation of documentation for the forthcoming Symposium on Industrial Development and, in particular, the document on industrial manpower.<sup>3/</sup>

<sup>2/</sup> Ibid., Forty-third Session, Annexes, agenda item 8, documents E/4353 and Add.1.

<sup>3/</sup> Document ID/CONF.1/A.17.

36. Mr. VARELA (Panama) said that the lack of adequately trained technicians for new industries in developing countries was due less to the brain drain than to the educational system in operation in most countries, under which greater stress was laid on formal education for the liberal professions than on scientific and technical training for industry and agriculture. The developing countries should therefore endeavour to adapt their public education systems to the requirements of industrialization and to provide technical training in secondary schools. The brain drain could not be halted by legislation, since such legislation would conflict with democratic principles and, in Panama, would violate the Constitution by attempting to impose control over the freedom of movement of individuals. Trained personnel emigrated from developing countries for good reasons: they did not have sufficient opportunities at home to exercise their skills, acquire more advanced training or receive the salaries to which they are entitled. Thus, the developing countries found themselves in a vicious circle, in which there were insufficient technicians to staff new industries and not enough industry to provide employment for qualified personnel. They must therefore reorient their systems of public education and, where necessary, send personnel abroad for training.

37. The developing countries had probably become aware of the problem too late. In Panama, for example, an institute for the development and training of human resources had been established only three years before. The institute, which was financed by grants from the Inter-American Development Bank and the Government, determined where the urgent employment needs lay and granted loans and fellowships for training abroad. Trainees were required to return to Panama on completion of training; otherwise, they had to reimburse the cost.

38. Educational reorientation was not in itself enough to ensure adequate training and the brain drain would continue as long as there was an insufficient flow of investment capital. His delegation would therefore support any measure to provide the Industrial Development Board with sufficient funds to assist in the training of national technical personnel in the developing countries. Panama also hoped that the question would be considered at the forthcoming International Symposium on Industrial Development with a view to the establishment of guide-lines for the organization of educational systems oriented towards vocational training.

39. Mrs. THOMAS (United Nations Education, Scientific and Cultural Organization) said that the discussion had clearly shown the importance of the educational system in the training of technical manpower. She had been gratified by the references to the possible association of literacy projects in industrial projects, the importance of new training techniques, and the desirability of multi-agency projects. Her organization was already engaged in fruitful co-operation with UNIDO in the matter of technical training, a co-operation which it wished to continue.

40. Mr. BEAULIEU (Haiti) said that the United Nations family of organizations had an important role to play in the training of technical personnel, which was an

essential factor in accelerating the industrialization of the developing countries. Unfortunately, Haiti's experience of UNDP programmes involving fellowships and other training schemes had shown that it was really the industrialized countries that benefited from United Nations technical assistance programmes, since they were able to offer higher salaries to the personnel trained under such schemes. Thus, what was offered to the developing countries with one hand was taken away with the other, and a considerable number of projects in Haiti had not been completed because Haitian personnel who had been trained under multi-lateral or bilateral assistance schemes had failed to return. The specialized agencies, too, shared the responsibility for the outflow of trained personnel from the developing countries; when Haiti had launched its literacy campaign, UNESCO had recruited a substantial number of Haitian teachers for work in the Congo, while WHO had answered Haiti's appeal for doctors to assist in its health programme by itself recruiting hundreds of Haitian doctors. Countries like Haiti, where primary, secondary and university education were free, would face a bleak future if they continued to train personnel for the benefit of the developed countries and the specialized agencies. As a number of representatives had pointed out, the best way to halt the brain drain problem was through in-plant training.

41. Mr. KOCHUBEI (Ukrainian Soviet Socialist Republic) said that, since neither General Assembly resolution 2090 (XX) nor Economic and Social Council resolution 1029 (XXXVII) had yet been implemented, the Committee should adopt a decision for inclusion in its report with a view to facilitating progress in the matter. In addition to reiterating the invitation to Member Governments to submit their comments on the report of the Secretary-General, the decision should also reflect the importance of the problem of the brain drain. The Ukrainian delegation therefore wished to propose the following text:

"The Second Committee invites the Governments which have not done so, the specialized agencies, the United Nations Development Programme, the United Nations Industrial Development Organization, and the regional economic commissions, to submit their comments on the report of the Secretary-General (E/3901/Rev.1 and Add.1 and 2), and requests the Secretary-General to prepare the report called for in resolution 2090 (XX).

"The Second Committee also requests that the points raised at the twenty-second session of the General Assembly, in particular the problem of the brain drain, should be examined by the Industrial Development Board and that a report on this subject should be submitted to the General Assembly at its twenty-third session."

42. The Ukrainian delegation did not wish to submit a formal draft resolution, since General Assembly resolution 2090 (XX) had not yet been implemented, but it was prepared to do so if necessary.

43. Mr. BLAU (United States of America) pointed out that no reference was made in General Assembly resolution 2090 (XX) to the problem of the brain drain, so that, in effect, a new decision had been requested.

In addition, the request for the preparation of the report by the Secretary-General should emanate from the General Assembly and not from the Committee, which was only empowered to make recommendations to the Assembly. The Ukrainian proposal required careful study and his delegation therefore proposed that its consideration should be postponed until the text had

been circulated in accordance with rule 80 of the rules of procedure of the General Assembly.

44. The CHAIRMAN said that that procedure would be followed.

*The meeting rose at 1.5 p.m.*