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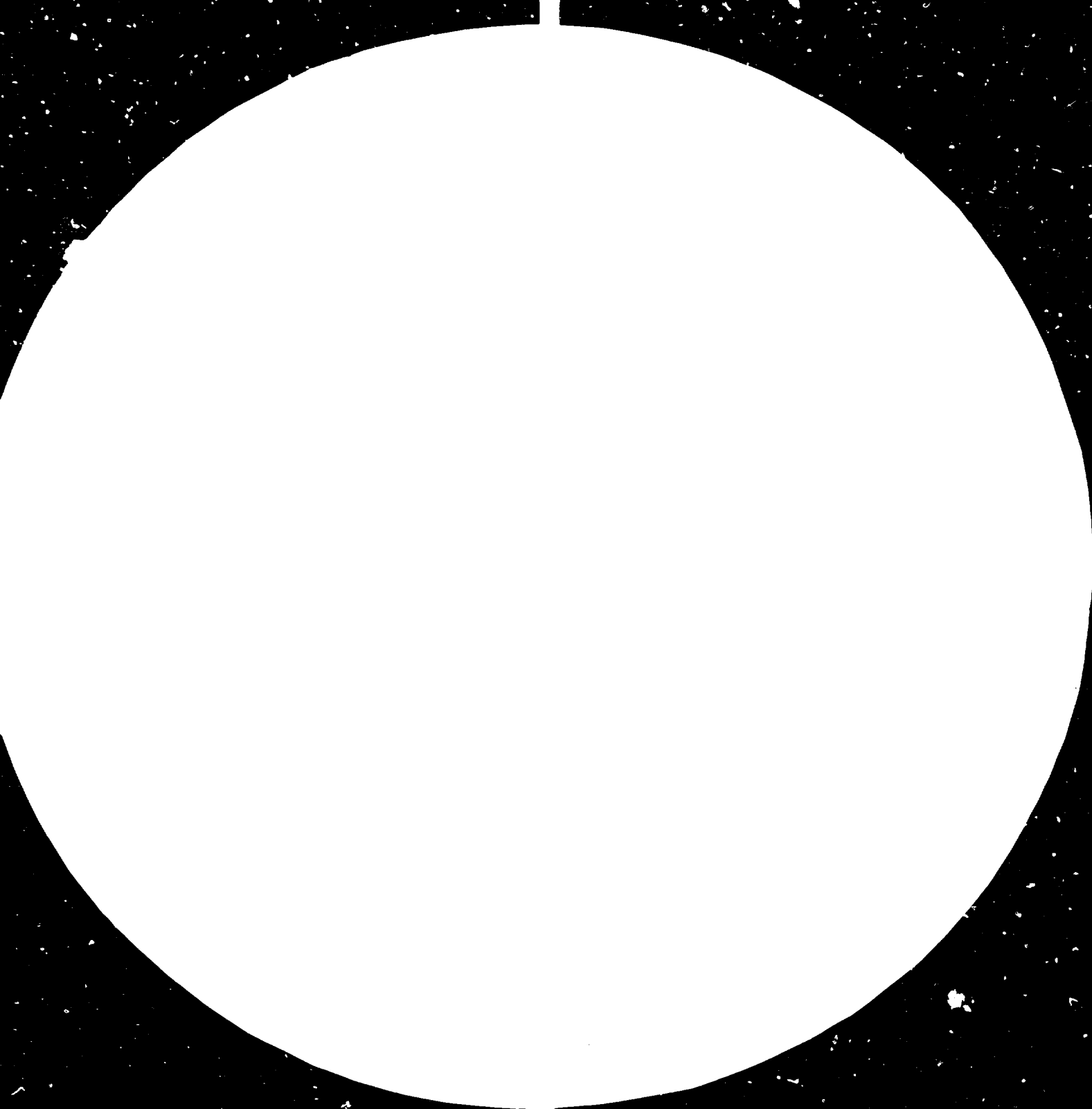
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**HIGH-LEVEL
EXPERT GROUP MEETINGS
PREPARATORY TO THE
FOURTH
GENERAL CONFERENCE
OF UNIDO**

*Accelerated Development of Human Resources
for Industrial Development
Yaoundé, United Republic of Cameroon,
30 May - 3 June 1983*

**MEASURES FOR MORE EFFECTIVE INTERNATIONAL
CO-OPERATION FOR ACCELERATED DEVELOPMENT
OF HUMAN RESOURCES
FOR INDUSTRIAL DEVELOPMENT**

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I. INTRODUCTION

1. The field of human resources development for industrialization is one that lends itself to international co-operation. In all the actions identified in Document ID/WG.394/4 on "Actions for Accelerated Development and Utilization of Human Resources for Industrial Development", there is scope for co-operation among the developing countries themselves, on the one hand, and between the developing and the developed countries on the other. Such co-operation would include exchange of information, teachers (instructors) and students; joint development and sharing of training and research programmes and facilities such as computer and video tape-recorded programmes; joint financing of expensive training facilities; joint production of educational materials, tools equipment, kits; and harmonization of industrial manpower development policies and plans. In these endeavours, many of them would require various forms of assistance which could be made either through bilateral or multi-lateral assistance arrangements or through the support of international organizations such as UNIDO, UNESCO and ILO.

2. In document ID/WG.394/1 entitled "Accelerated Development of Human Resources for Industrial Development: Some Issues for Consideration", para. 41, attention was drawn to the role of international economic co-operation in the accelerated development of human resources for industrialization. In this context it may be worth noting that economic co-operation has been considered as an arrangement by which a developing country supplements its resources for development or organizes production to overcome economies of scale with the support of one or more countries who expect to gain from making such supplements available or from participating in production and market sharing. In this document the concern will be with human resources and with the relative advantages of co-operation to a developing country planning the accelerated development of human resources in order to push ahead with its industrialization.

3. The first difficulty which policy-makers and planners in developing countries are likely to encounter is to obtain specific, concrete definitions and quantification of technical co-operation requirements and to identify the most suitable sources from which to obtain the assistance needed. In some countries, assistance may be needed to build the capability to define and quantify needs and requirements. Quite clearly, therefore, governments ought to consider early, in the policy-making and planning stage, the local competence available for this activity and to arrange intensive technical assistance programmes to improve and extend this competence since it is in

most cases a recurrent requirement. The tendency is, of course, to seek such assistance from developed countries or international organizations. It should, however, be borne in mind that the feasibility of fifty or more developing countries raising their requests for aid and technical assistance from developed countries by a factor of two or three or even more in the area of education and training for industrialization has already been ruled out. ^{1/}

II. CO-OPERATION AMONG DEVELOPING COUNTRIES

4. Concerning co-operation among developing countries, it would be useful for the considerable experience and expertise in the development of human resources for industrial development which has been accumulated in some countries to be shared by others. Such co-operation could be effected through the identification and preparation of an inventory of existing national training centres which could be reinforced to provide training to other countries. Within geographical regions, such as Africa and Asia, these national institutions could become regional or sub-regional training centres or centres of excellence within the region. Consideration should be given to the establishment of appropriate machinery especially at the regional and sub-regional levels, for initiating and co-ordinating the implementation of the above-mentioned activities. Advantage could be taken of existing intergovernmental organizations already established in the industrial and economic development fields.

5. The question of information cannot be overemphasized. In order to promote co-operation among developing countries a good deal of the information available on selected developing countries' resources and achievements in human resources development for industrialization should be put at the disposal of other developing countries. Work on the preparation and dissemination of information of this kind is urgent and necessary. Emphasis should be placed on individual country achievements in particular areas. Reference has already been made to public enterprises in developing countries which

^{1/} See document ID/WG.394/1 entitled "Accelerated Development of Human Resources for Industrial Development: Some Issues for Consideration", para. 41.

have established or are gaining international recognition for the high quality of their technological production or economic and managerial performance.

6. Deficiencies in the supply of appropriate, evaluated information could quite considerably be made by diplomatic or economic missions; but, regrettably, the weight of convention in the design and functioning of such missions deprives them of both competence and the will to undertake such a service. It is striking that, in contrast, similar missions of developed countries in each other's territories are organized and well-staffed to carry out this aspect of economic relations. It is not unusual to find educationists, scientists and technologists among their staff. It is not merely the diplomatic outpost that is to blame. In many cases the organization and functioning of the Ministries responsible for foreign and economic affairs and their relation with other Ministries and Government Agencies may be the weakest link in the chain.

7. On the other side of the coin is the working relations among government, industry and educational institutions. To some extent weaknesses of the kind described are due to the lack of clear objectives and targets in economic co-operation arrangements and, consequently, to poor design and articulation of instruments of co-operation. Where important posts along the decision-making process are held by national personnel with little familiarity with education, and no training in industry or technical processes, conditions tend to be worse. The essence of these observations is that a developing country which is preparing to launch a process of accelerated industrialization (which implies even greater acceleration of human resources development) would do well to review and reorganize its machinery for seeking and utilizing foreign aid and technical assistance.

8. In the documents dealing with critical capabilities and with institutional infrastructure a pattern of human resources for development was adapted which will be followed here. First is research for policy-making, followed by policy-making and planning. Indications were given of how aid and technical assistance among developing countries could help in improving personnel responsible for these functions. Secondly, in regard to entrepreneurship and management, both in the public and the private sector, similar proposals were put forward. In the case of public enterprises this was extended to cover attachments and mutual exchange of staff. The most common form of development of industrial entrepreneurship is, of course,

the joint enterprise - not only for industrial production but also for raw materials production, supply and procurement. The importance of access to a wide range of complementary raw materials has been referred to elsewhere. Joint enterprises are also required for the marketing of industrial products. The Japanese Trading House presents a good model of what a multi-nationally owned marketing company in developing countries can do.

9. Economic co-operation among developing countries could also take place in the provision of consultancy services and civil engineering, as well as in their development. The education and training of middle management and specialist staff can also be organized on a joint basis (e.g. teaching and training companies as described in document ID/WG.394/1). In addition, the production of educational materials and equipment can also be organized on a joint basis. At the level of training workshop operators, the most effective form of co-operation may lie in the technical assistance field (for the provision of teachers and instructors or of opportunities to train them) for several reasons. The first is the large number involved and the cost implications. The second is related to the limitations on training places in the country offering technical assistance. The third is the language problem; and the fourth stems from cultural differences. By and large, workshop operatives are best trained in their own countries.

10. Whatever the scope of economic co-operation among developing countries relating to the development of human resources for accelerated industrialization (supply of information, organization of study visits, supply of technical assistance experts, education and training of personnel, particularly of teachers and instructors, joint establishment of teaching and training companies or education and training materials, implements, tools, equipment, research in industrial teaching/learning processes), it will require considerable effort among policy-makers and planners in programming and planning, and considerable statesmanship at the highest levels in negotiating mutual benefits and costs and foreign exchange implications. This applies as well to the effects of cultural differences on relations among foreign students or between foreign students and nationals. In some donor countries, particularly in Eastern Europe, provision is made for an obligatory language and cultural familiarization course before technical education or training commences. This reduces some of the bewilderment and sensitivity of foreign students. Some effort should be made to explore the advantages of this arrangement and to encourage their adoption.

III. CO-OPERATION BETWEEN DEVELOPING AND DEVELOPED COUNTRIES

11. While emphasis on the development of human resources for industrial development has to be placed on actions, first at the national level and secondly among the developing countries, there is, nevertheless, great scope for co-operation between the developing and developed countries in this area. There is a great demand emerging in the developing countries for the training of complete teams for production, maintenance and management purposes in connection with an industrial project and, to some degree, for the establishment of technology and training centres to support specific sectors of industry. The assistance of developed countries, through bilateral and multi-lateral co-operation arrangements, and through commercial relations at the enterprise level could be quite useful. In order to reinforce co-operation among the developing countries, it would also be necessary to strengthen and expand the scope of existing co-operation between developed and developing countries.

12. In regard to the above, governments of developed countries need to adopt appropriate policy measures which would facilitate such co-operation, including greater access by students from the developing countries to training institutions in developed countries; supply of information, training programmes and aids to developing countries and financing of industrial training programmes and facilities in developing countries. High priority should be given to industrial training in bilateral and multi-lateral technical assistance and aid programmes to developing countries as well as in contractual arrangements between companies in the developed countries and governments and/or enterprises in the developing countries relating to industrial and technology transfer projects. Consideration should be given to strengthening existing focal points in developed countries or the establishment of new ones to co-ordinate their co-operative programmes with the developing countries in the development of human resources for industrial development. Setting up of educational, training and research institutions with the aid and assistance of friendly developed countries has been a common practice. A consortium of educational institutes in a developed country assisting a developing country; twinning or sister adoption arrangements have also proved successful.

IV. ROLE OF UNIDO AND OTHER INTERNATIONAL ORGANIZATIONS

13. As indicated in the document ID/WG.394/1 on "Accelerated Development of Human Resources for Industrial Development: Some Issues for Consideration", the international organizations, especially UNIDO, UNESCO and ILO, have an important role to play in assisting the developing countries, especially the Least Developed Countries, in the development of their human resources for industrialization. Such assistance has to cover the total spectrum of the development process, but should be well-formulated and channelled to priority actions determined by the governments. The critical areas of such assistance would include the identification of the industrial manpower needs, the formulation of policies, plans and programmes, and the strengthening of mechanisms to co-ordinate the collection and dissemination of information on industrial manpower development. In this regard, assistance would be required in the identification of all existing relevant education and training opportunities at the national, sub-regional, regional and global levels and the assessment and dissemination of information on each of them.

14. In addition to the above, the on-going programmes of these organizations related to the development of human resources for industrialization need to be critically re-examined, expanded in scope and re-directed towards meeting the actual needs and requirements of the developing countries. Measures to ensure greater multiplier effect on these programmes should be developed. Above all, efforts need to be intensified to assist the developing countries, especially the Least Developed Countries, in mobilizing more financial resources and in the better utilization of existing ones in industrial training; acquiring or sharing training programmes, facilities, equipment; and in promoting the exchange of teachers, instructors students and experiences among the developing countries. The important consideration is type of steps to be taken for leapfrogging, and accelerated modes of training to build the minimum competence. With regard to UNIDO, in particular, a number of proposals have been advanced in the other documents reproduced for this meeting. The most significant ones are summarized below:

A. Suggestions for future actions by UNIDO

15. UNIDO, in co-operation with UNESCO, ILO and other relevant international organizations should assist the developing countries by organizing study tours, familiarization courses and seminars for socio-economic researchers and policy-makers to other developing countries, especially the NICs, related

to industrial structures and processes and to the use of technical and social accelerators, economizers and adaptors in the development of human resources for industrialization. The study tours should also include industry familiarization visits (including training and teaching companies), for officials dealing with education and training in ministries of industry, education, labour and manpower planning; central and local government development officials; and for trainers, teachers and instructors in universities, polytechnics and other advanced technical institutions in order to enable them to exchange experiences with their counterparts and to benefit from the successes achieved by the countries being visited.

16. Assistance should also be provided in training national staff in organizing data and information bases pertinent to accelerated development of human resources for industrialization. In this regard, special programmes should be developed for industrial and manpower planners, as well as programmes for the development and provision of support services to indigenous entrepreneurs and to medium-scale and small-scale enterprises. Programmes of assistance in the development of indigenous consultancy services should be intensified, with special emphasis on the improvement of existing, or the development of new policy measures.

17. Another area requiring the assistance of UNIDO, in collaboration with UNESCO, ILO and other relevant international organizations relates to the review of formal education and training arrangements in the developing countries and their relation to estimated manpower needs and critical capabilities for accelerated industrial development. Such a review should include arrangements for the active participation of industry in human resources development, with particular reference to the selection of courses and the development of curricula; the provision of part time teaching personnel; the acquisition of equipment, materials, etc.; the provision of facilities for industry familiarization visits and on-the-job training in industry. The review should also cover the national machinery for planning, co-ordinating and monitoring the implementation of programmes for the development of human resources for industrialization including, in particular, the role of industry, education and training institutions and other relevant agencies.

18. An area in which UNIDO could provide assistance to selected developing countries relates to the establishment of teaching or training companies, at the national, sub-regional or regional level, in major core industrial

sectors. The concept of teaching companies has precedents, not only in the United Kingdom and Canada, but also in China where the "Tien tsing and Shanghai" (old established manufacturing centres) already exists for several years. These centres are able to import, adapt and reproduce machinery and plants or to replicate new inventions on a commercial basis; provide after sales service; undertake extension and consultancy, etc. UNIDO could also assist the developing countries by preparing a short and simple basic paper on the design and the functions of training companies as a service to those developing countries which may wish to and could set up joint projects with foreign companies from the developed or developing companies. UNIDO could provide further assistance in identifying suitable nodes (e.g. railway workshops, timber processing centre, etc.) or other locations, as well as in designing and mobilizing external aid and technical assistance for development of these nodes and locations into national, sub-regional, regional or inter-regional training centres.

19. Other areas for possible assistance from UNIDO, in co-operation with other relevant international organizations would include:

- a review, at the national level, of the structure and functioning of the knowledge industry. Such a review should include the role of national youth services and units of the armed forces, supported by mobile units, in promoting mass vocational education and in transmitting improved techniques, tools, implements and equipment for small scale production in the rural areas;
- examination of possibilities of establishing multi-national institutions for R and D related to the adaptation and local production of implements, tools, instruments, etc., for education and training. This should also include the development of a concept for the establishment of multi-national joint enterprises for the production of materials, equipment, etc. for educational purposes, including "do-it-yourself" movements;
- elaboration of proposals for the development of capabilities for the exploration, evaluation, extraction, transportation and trade in industrial raw materials;
- review, at the national level, of the curricula for second level general education and the need to increase the vocational and technical content. This would necessarily raise problems related to the training of teachers and instructors to apply curricula; the supply of equipment required by new curricula; and to the consequential changes in examination.
- the preparation of guidelines, based on experiments and practice elsewhere, for introducing bridging courses; and

- thorough review (including field studies commissioned by governments) of existing support services for industry in general, and local industrial entrepreneurs in particular, with a view to: revising their structure and coverage; improving the quality of staff and their methods of operation; and to ensuring proper geographical distribution. In this regard consideration should be given to more effective ways of promoting local consultancy services and to the role of public enterprise in promoting medium and small-scale entrepreneurship and management.

V. CONCLUSION

20. In this document, attention has been focused on the need for international co-operation in human resource development. Co-operation may, of course, cover a very wide area of activities and may take many forms. But the following, which are somewhat different from the traditional forms of co-operation, are among the ones requiring particular consideration:

- co-operation in the exploitation of educational facilities in university, polytechnic and specialized institutions of education and R and D. This would include not merely existing facilities but also improvements and expansion. It is even possible to envisage agreements amongst institutions on specialization in particular subjects;
- co-operation in the establishment of teaching/training companies;
- co-operation in the multi-national production of teaching/learning materials, and equipment including radios, television sets, video cassettes and video discs. Critical for the use of most of this equipment is the availability of electric power. Thus the manufacture of electric batteries or small scale electric power generators becomes an important part of the production programme;
- co-operation in the development of human resources required for the exploitation of natural resources/industrial raw materials and of civil engineering works in the developing countries;
- co-operation in the training of trainers, instructors and teachers; and
- co-operation in research into teaching/learning processes as distinct from R and D in support of adaptation or production of materials and equipment (to which reference was made above).

21. Policy makers and planners in some developing countries tend to believe in a particular external model of an education and training system which is subconsciously assumed to be the best and therefore the most desirable. Quite apart from the fact that the obvious components of an education and training system conveys and transmits values and cultural

features of a particular society at a particular time, there is the added consideration that the obvious components rarely comprise the whole and that many factors not within the formal system reinforce or modify elements within it. The difficulties of models are, as pointed out elsewhere, particularly difficult where models are themselves in the process of rapid change. In other words, developing countries are faced with the challenge of inventing their own systems of both formal and informal education and training. In trying to do so, they would, it is assumed, want to take account of excellences found in other systems which could be adopted and incorporated into the system they are fashioning. Joint research would clearly advance this objective.^{2/}

22. A great deal of attention tends to be given to the problem of equivalence of education and training courses and diplomas and therefore to mutuality of recognition of the status of graduates. Developing countries, individually and collectively, engaged not only in the adoption of some external models, but also in the invention of their own systems have some advantage in resolving this problem through co-operation at the earlier rather than at the later stages of the process.

23. In all the actions proposed, UNIDO has a fundamental responsibility to assist the developing countries. The Secretariat of UNIDO, in collaboration with other relevant international organizations, both within and without the United Nations System, could take vigorous steps to ensure that recommendations involving co-operation in the development of human resources for industrialization are examined at regional, sub-regional and inter-regional levels and at meetings dealing with co-operation in industry, education and training.

^{2/} United States Education Authorities for example take great interest in educational development in Japan and the USSR.

