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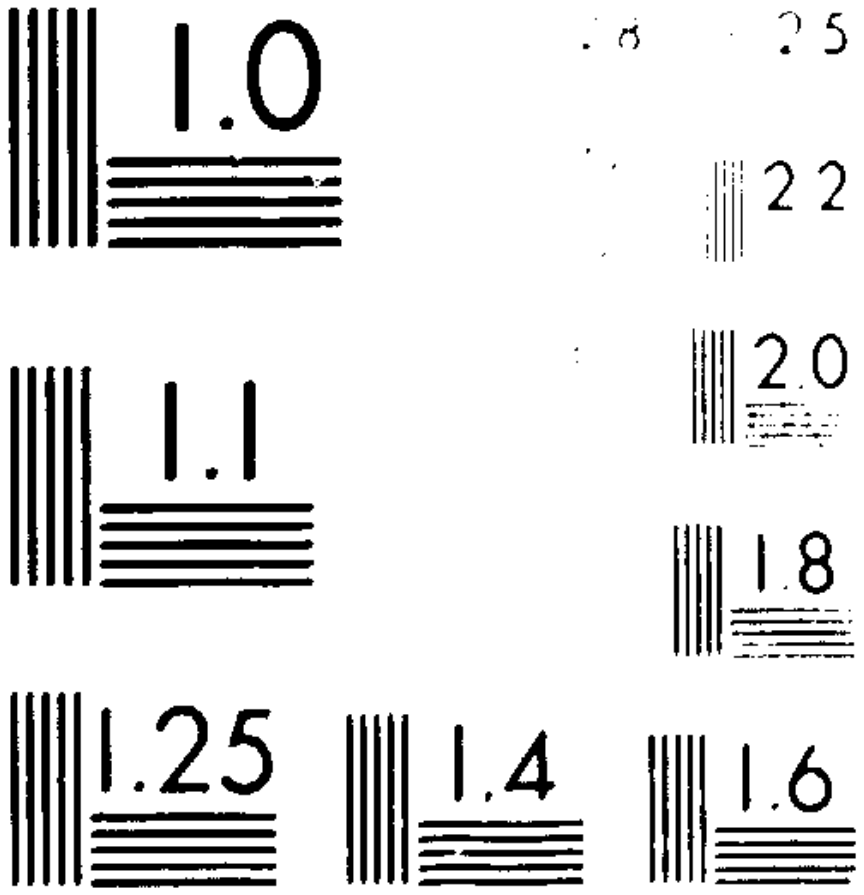
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First Consultation on the Training of
Industrial Manpower

Stuttgart, Federal Republic of Germany
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BACKGROUND PAPER* (industrial training)

prepared by

the secretariat of UNIDO
in collaboration with
the secretariats of ILO and UNESCO

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*/ For technical reasons the text of these Annexes is not bound with this volume, but the document will be made available separately.

INTRODUCTION

1. This paper provides documentation and commentary for the Issues Paper. It contains factual material for the convenience of the reader, references to UNIDO studies utilized in preparation for the Consultation, 1/ and some suggestions and opinions. It has been thought proper to include the latter because while the purpose of the Packground Paper is to support and illustrate the Issues Paper, both of them - and the Consultation itself - have the broad intention of stirring people to think about the important subject of training, which underlies all progress towards the transfer of technology and the advance of industry in the developing countries.

2. As the Issues Paper indicates it is the intention throughout to look at questions relating to industrial training from the point of view of industry, since it is for the benefit of industrial enterprises in developing countries, whether private sector or public sector, that the Consultation is being held.

3. Because of variations of terminology between different countries and different regions the reader's attention is drawn particularly to the section in Chapter I on terminology. Experience shows that in discussion of training internationally terminology can be a serious obstacle to understanding.

1/ Details of these appear in Annex I.

Arrangement of the Background Paper

4. The arrangement of the Background Paper follows generally that of the Issues Paper, but certain main themes have been gathered together for clarity. Details are shown in the contents.

5. Chapter I: The Consultation - the first on this subject - will bring together a wide range of people with differing interests, but all sharing a common concern for more and better training of industrial manpower (and womanpower) for the developing countries. This Chapter of the Background Paper is therefore intended to serve as an orientation for the reader - or, to put it another way, it sets the parameters within which the discussions will be held.

6. Chapter II deals with questions of technology and technology transfer raised in the first part of Issue 1.

7. Chapter III discusses aspects of training theory and practice related to the strengthening of national training systems - Issue 1 C(a).

8. Chapter IV examines the need, possible functions and methods of operation of national "focal points" for co-ordination of international industrial training activity in developing and developed countries - Issue 1 C(b).

9. Chapters V - VII are concerned with the main subjects of Issue 2, namely:

Chapter V: improvement of contractual relations for the transfer of technology, including industrial training;

Chapter VI: financing of co-operation in the field of training for industry;

Chapter VII: co-operation among developing countries in the field of industrial training.

10. A short section at the end of Chapter I refers to subjects not dealt with in these Papers which are part of the overall field of training for industry in developing countries. It is included for completeness, and provides a checklist of some - but certainly not all - other topics which might be discussed at the Consultation if only time allowed.

I. SCOPE OF THE CONSULTATION

11. The development of industry in the developing countries, and the establishment of training for this purpose is a very wide subject, and as the Issues Paper says (para. 40) a selection has had to be made within it of certain matters which are suggested to the Consultation as being of priority importance. Some notes on the field from which this selection is made - i.e. the total area with which studies [2/] and discussions in preparation for the Consultation have been concerned - may help the reader:

(i) The needs of all developing countries are considered, although the relative weight of the development of industry and technology being in favour of the more advanced countries the position of the least developed countries receives less apparent attention. In accordance with Resolutions of the United Nations General Assembly directing all United Nations organizations to give consideration to the special needs of the least developed countries their problems are not however forgotten.

(ii) The part played by education is an essential theme throughout the Consultation - as is the importance of creating and/or strengthening working links between industry, education and training.

(iii) Industry is on the whole restricted to manufacturing industry, although the training needs of the infrastructure and service industries, especially in the least developed countries, are also taken into account.

2/ See Annex I.

A note on the meaning of "industry" in the context of the Consultation appears in paras. 21-22.

(iv) Public sector industry and private sector industry are treated alike, since for purposes of choice and use of technology, technical and commercial efficiency, and industrial training, there can be no distinction between them. (Indeed, in many developing countries industry began with the public sector utilities, and private sector enterprises are happy to employ people trained by them.)

(v) All sizes of enterprises from the largest to the smallest are considered. Both ILO and UNIDO give special attention to the needs of medium and small industries, down to and including self-employed artisans.

(vi) Although most manufacturing industry is located in urban areas, industries in rural areas are also taken into consideration. These may be:

- large plants situated near to raw materials, e.g. a cement plant, or near water, e.g. a pulp or paper works, or near transport, e.g. a steel works on a river or railroad;
- large or medium-size manufacturing enterprises taking advantage of the availability of labor and making sophisticated modern products for export or home consumption;
- medium or small-size enterprises making capital goods, e.g. agricultural implements, or consumer goods for local use;
- family-size units making traditional products for sale locally.

12. All these kinds of rural industries have training needs, which is the function of both UNIDO and ILO to help countries to meet, in accordance with the agreed division of responsibility between the two Organizations.

(vii) While the formal (modern) sector of industry is the primary concern ways and means are also sought to assist with the training needs of informal (traditional) industries.

(viii) All levels of training from senior management and top technologists and engineers down to semi-skilled workers are considered.

(ix) All levels of technological complexity are considered - one of UNIDO's priority concerns being to guide developing country industries in the selection of the technology most appropriate for their purpose - whether simple or advanced. This Consultation will not be concerned with "appropriate technology" in the sense of devising and publicising simple technical solutions to widespread practical needs, especially in rural areas.

(x) All types of skill are considered, whether broad skill (transferable skills) or specialized skill (production skills).

(xi) Special types of training such as training for industrial safety and health, are outside the scope of the Consultation but are also studied and aided by the international organizations, in this case by ILO.

(xii) UNIDO places great importance on the training of national

planners of industrial development and of staff responsible for encouraging and controlling transfer of technology.

(xiii) Last but not least, training of trainers is a special responsibility of both UNIDO and ILO, and a separate section of this Paper (paras. 180-191) is devoted to the subject.

13. To help the reader get a general idea of the interrelationship of the various subjects raised in the Issues Paper a diagram appears at Annex II showing some of them in schematic form. The diagram is of course no more than an aid to understanding.

Terminology

14. A great many special terms are used to describe different aspects of training of industrial manpower, because study and development of the subject is going on at the same time in different parts of the world and in different languages. In addition, the subject is constantly evolving, and as it does so new terms emerge or old ones are given extended or new meanings. As a result experience shows that in discussions about training of industrial manpower internationally terminology can be a serious obstacle to understanding.

15. Having suffered from this problem in the past both ILO and UNESCO brought out some years ago glossaries of terms which are used in vocational education and in training of industrial manpower, and consulted together to ensure agreement between them. As an aid to understanding at the present Consultation, the ILO glossary of training terms is included at Annex III,

which will be made available in the conference room during the Consultation. (The corresponding UNESCO glossary is entitled "Guide to Terminology of Technical and Vocational Education").

16. But neither glossary covers all the terms in use in training of industrial manpower and there are also numerous cases where the same word is used in different senses in different parts of the world. It will be very advisable therefore to bear this in mind during the Consultation, and if there exists any possible doubt a term should be defined to ensure that everyone present understands it in the sense intended.

17. Two examples of terms which are used in a number of senses and which are not in the ILO or UNESCO glossaries, will indicate the problem:

- "technologist" is generally taken to mean a person fully professionally qualified in a branch of engineering. He or she will have advanced knowledge of theory and also practical experience, and will be capable of planning and directing work at high levels in his or her specialist field, including the ability to design machinery, equipment or processes.

18. In Brazil, however, the term "technologist" has recently been deliberately introduced and publicized for a sub-professional level qualification, which in the majority of countries is known as a "technician" (i.e. intermediate between a fully qualified professional and a skilled worker). The reason for the new use of the term in Brazil is purely psychological and pragmatic. There has been an aversion to the

status of technician, which has been held to be socially inferior to engineer, and the new term "technologist" has prestige. The device has been successful and the new title and grade have caught on, but a side effect will be the risk of confusion in discussion when someone from another country discusses or studies Brazilian practice in training of industrial manpower.

19. The second example is the currently popular word "module". This is used in a number of different senses by different organizations - some uses tending to indicate a broader meaning and some a narrower meaning. There is no agreed official definition and the term does not appear in the ILO glossary. It is therefore advisable always to define the use of the term since otherwise confusion may result.

20. The word "professional" can itself cause confusion for linguistic reasons. While in English it is reserved for the highest level of qualification, in French and other languages it refers to all levels of specialized technical training. Loose translation therefore often risks misunderstanding as to what is intended. To attempt to overcome this problem the ILO and UNESCO glossaries include both the French and English terms in each case.

The interpretation of "industry"

21. The concept of "industry" varies according to the viewpoint of:

(i) The country concerned;

(ii) The organization concerned.

(i) The country view. "Industry" means something quite different to each group of countries in the scale between most and least technologically developed. One classification of developing countries is that used by the Asian and Pacific Skill Development Programme (APSDEP), namely:

- advanced economies;
- developing industrialized countries;
- developing countries with a significant urban - industrial sector;
- little developed/least developed countries.

22. Looking at industry in the broadest terms of :

- manufacturing, including the process industries;
- extraction industries (such as mining);
- service industries;
- infrastructure industries;

all these types of industry are of importance to the first three groups of developing countries. The situation is different though for the least developed countries who have as yet little or no manufacturing. For them "industry" means the service industries - power, water, transport and communications; and the infrastructure industries - building and civil engineering construction. Their dependence on these basic facilities is total, and consequently their need for training to maintain them is very great, although they are mainly not classified as "industry" in UNIDO terms, as described below.

(ii) The organization view: The responsibilities and history of each international organization determine its interpretation of the term "industry". Thus it is not the same for the ILO as it is for UNIDO.

- UNIDO uses the International Standard Industrial Classification (ISIC) as its starting point, taking from this as its main responsibility Major Division 3 Manufacturing. Certain other activities are also treated as "industry" for UNIDO's purposes, the normal test being whether the industry concerned involves the use and development of technology in the mechanical and electrical sense. Thus UNIDO is concerned with processing of minerals but not with mining itself, and with agricultural machinery but not with agriculture. Among the service industries, power generation and transportation come within UNIDO's scope; for example, training for maintenance of railroads or road transport fleets. UNIDO is not concerned with the construction industry, other than the manufacture of equipment for it. As regards the informal sector of industry, UNIDO is concerned with the encouragement of small and medium-sized industries in both urban and rural areas. A list of the ISIC Major Divisions appears at Annex IV.

- The ILO's constitution requires it to concern itself with all employment, i.e. every category of the International Standard Industrial Classification comes within ILO's interests, including service industries such as tourism, and of course agriculture. For the purpose of the Consultation on the Training of Industrial Manpower however, the ILO is primarily concerned with training only for the same industries as UNIDO, i.e. basically the manufacturing industries. The ILO's responsibility for all employment naturally takes it into the informal or traditional sector,

and so it shares UNIDO's interests in the development of small and medium-scale industries, in both urban and rural areas.

- Through its programmes in education, science, culture and communication, UNESCO is active in many areas which are seen as pre-requisites for industrial development.

The interpretation of "training of industrial manpower"

23. The conception of training of industrial manpower also varies according to the viewpoint. That is to say, each country and organization sees a different part of the range of levels and subjects of training as of particular importance for its own situation at the present time - but many developing countries are acutely aware that this situation is evolving rapidly as their technology advances.

24. All nations are concerned with training for mechanical, electrical and other production and maintenance skills, and this is the prime meaning of training of industrial manpower. However, many other skills are also needed by enterprises in developing countries, as they are in developed countries. The extent to which training for these other skills, which may be broadly classed as "management", is treated as "training of industrial manpower" varies from country to country, from case to case and from observer to observer.

25. These ancillary skills include for example:

- finance - at management control or basic accounting levels;
- data processing;
- purchasing, supplies and stores management; etc.

26. In general, the First Consultation on the Training of Industrial Manpower will be concerned more with the basic technological skills, while recognizing that industries and enterprises in developing countries do also need these other ancillary skills in addition to the technical and technological skills of production. A simplified diagram showing levels of training for industry appears at Annex V.

Responsibilites of the United Nations organizations for training industrial manpower

27. The participation in the Consultation on the Training of Industrial Manpower of the ILO and UNESCO together with UNIDO indicates that all three organizations have responsibilities for various aspects of the subject of training of industrial manpower, and the Preface to the Issues Paper explains how the three organizations are co-operating in a joint working group for the preparation and follow-up to the Consultation. It may be helpful for participants to have some idea how the responsibilities of the three organizations relate to each other. In the broadest terms UNIDO is responsible for the development of industry and of technology related thereto; the ILO for every aspect connected with employment, including training for employment; while UNESCO is responsible for education at all levels, including education of scientists, engineers and technicians, and technical and vocational education.

28. In addition, in order to clarify the division of responsibilities between the ILO and UNIDO in regard to industrial training and related subjects, the text of the Memorandum of Understanding concerning co-operation between ILO and UNIDO, dated 31 August 1976, and the Agreement between UNESCO and UNIDO, dated 22 December 1978, appear as Annex VIII.

29. Both UNESCO and ILO have formulated major policy statements regarding technical and vocational education, and for vocational guidance and vocational training, and in view of the fundamental importance to the whole field of training for industry of these two po documents they are reproduced as Annex VI and Annex VII, which will be made available in the conference room during the Consultation. They are UNESCO's "Revised Recommendation concerning Technical and Vocational Education" of 19 November 1974; and the ILO's Convention No. 142 "Convention concerning Vocational Guidance and Vocational Training in the Development of Human Resources", and corresponding Recommendation No. 150 "Recommendation concerning Vocational Guidance and Vocational Training in the Development of Human Resources", both dated 23 Junes 1975.

30. Finally, a table is included as Annex IX, which seeks to indicate the division of responsibility between the United Nations organizations for some of the subjects covered by the Consultation on the Training of Industrial Manpower, but it should be said that these relationships are necessarily complex, and the table can therefore be no more than an approximation, to help participants appreciate how the training of industrial manpower is dealt with in the United Nations system. It will be noted that in one important subject, transfer of technology, another United Nations Organization is also involved, namely UNCTAD.

Subjects which do not appear in the Issues Paper or Background Paper

31. The topics in these Papers do not cover the full range of subjects relevant to industrial training for developing countries, which is a very wide field. A checklist appears at Annex X which attempts to give an overview of all aspects of practical industrial training as seen by a national training authority of by a Consultant on the subject.

ISSUE 1: APPRAISING AND MATCHING DEMAND AND SUPPLY OF TRAINING FOR INDUSTRY

II. TECHNOLOGY AND ITS IMPLICATIONS

A. The objective: mastery of the industrialization process

32. Clearly it is the ultimate objective of every country to master the process of industrialization, that is to say, to achieve the greatest degree of technological self-sufficiency of which it is capable within its limitations.

Meaning of mastery of the industrialization process

33. "Mastery of the industrialization process" is taken to mean the total envelope of technologies and skills needed to achieve industrialization - that is to say the creation and development of viable industrial enterprises, whether public or private. Training of individuals for industry is only part of this wider concept [3/]. Some examples of mastery of the industrialization process are given in the following paragraphs.

34. Mastery of industrialization is not achieved over the whole field of industry simultaneously. Indeed even in the most industrially advanced countries while some industries are world leaders others may remain relatively dependent on foreign technology. Some examples may help to show what is meant by mastery of industrialization or technological self-sufficiency.

3/ EUREQUIP: "La formation de la main d'oeuvre industrielle, sa problématique, sa pratique et sa place dans les processus d'accès à la maitrise industrielle" UNIDO, 1982.

35. In one developing country a relatively small local shoe manufacturing enterprise, owned and staffed solely by nationals is competing successfully with a major transnational manufacturer, and increasing its market share through a combination of quality, price and design. The local enterprise uses the most modern technology regularly introducing new machines which it searches out and buys from leading manufactures worldwide. Similarly it goes out and looks for the latest fashions in design and skillfully adapts these to the tastes and needs of the local market. The developing country enterprise is not therefore independent of foreign technology, but is able to master and use it for its own purposes. It retains the initiative and is not dependent on any particular outside source, or on expatriate staff. It can be said therefore to have achieved mastery of industrialization in this specific field.

36. In another developing country the local subsidiary of a major high technology transnational corporation has progressed beyond the point where it merely assembles products designed by the parent enterprise. So technologically competent has the developing country subsidiary shown itself that the parent has entrusted it with the design and total development of a new product to specifications supplied by the parent. If successful the new product will be marketed by the parent through the whole transnational organization and the relationships between parent and subsidiary will have moved some distance towards a more equal partnership. These developing country enterprises, too, can be said to be achieving mastery of industrialization.

37. In some countries political and financial control of industry rests in the hands of the national Government, but the actual processes of

technology are controlled by expatriates for lack of sufficient competent national technical staff. In such cases if the expatriates leave the industry concerned is brought to a halt. While this is undesirable in the case of manufacture it is disastrous in the case of essential service industries - such as power supplies or transport. Countries or industries in this situation cannot be said to have achieved either mastery of industrialization or technological self-sufficiency.

Degrees of mastery of industrialization

38. One scale of industrial advancement ranges from limited ability merely to use technical equipment, without understanding its construction, to full ability to plan and introduce new technology, as follows:

(i) ability to operate a machine;

(ii) maintain it;

(iii) repair it;

(iv) renovate it, including making spare parts;

(v) adapt an existing machine, product or process to new conditions;

(vi) improve it;

(vii) design a new product or process;

(viii) introduce new technology.

39. Technological self-sufficiency can be said to have been achieved when the last two stages have been reached. Further descriptions of the way in which industrial autonomy is approached are given in Chapter V concerning the Improvement of Contractual Relations (paras. 218-220).

40. Although the ultimate national aim is always to achieve total autonomy the immediate objectives of a given development project may for practical

or policy reasons, as the Issues Paper says(para. 17), be limited to less, i.e.:

(i) operational ability only, employing the minimum of local training and making considerable use of foreign skilled personnel, or

(ii) functional autonomy of the production units, requiring a systematic effort to train local manpower, but stopping short of total design capability.

41. Requirements for technological self-sufficiency. Technological self-sufficiency or self-reliance, demands an infrastructure comprising:

(i) trained people - the subject of this Consultation; and

(ii) resources - physical and financial.

It also requires institutions - a complex of national Industrial Research and Service Institutions (IRSIs - which also have valuable training potential); technical information centers; design, consultancy and engineering institutions; testing and standards institutions; and national technology regulating offices.

42. This is an objective towards which UNIDO has been working since its formation, and a number of countries on the brink of industrial development have reached the paradoxical situation that they cannot advance without at least part of such an institutional infrastructure for technological development, but without greater understanding of technology - what it is that makes our industrial society tick - they cannot see the necessity to establish it. (Which clearly for the smallest countries can only be on a shared/co-operative/regional basis). For this reason one of UNIDO's basic objectives is the training of national industrial and technology planning staff, and staff for the other basic technological services - engineering,

research, design and development staff; quality control and standards specialists; and also industrial extension staff to take consultancy help to small and medium-size industries.

B. Levels of technological complexity

43. Preparatory activities for the Consultation show that the progressive evolution of technologies in industry is a fundamental question. As industry evolves towards increasing technological complexity, a greater need emerges for specialized advanced technically trained personnel. While the approximate stages of technological mastery described above (para. 38) and those set out in the chapter on Contractual Relations (para. 218-220) have been generally accepted for many years, efforts have recently begun to study and analyse the stages and levels of technological complexity more closely, with a view to understanding the way in which technology can be progressively evolved in a country without an existing industrial base.

44. This step-by-step approach was discussed at the Consultation on the Capital Goods Industry in 1971, and thought to be of value for planning for that industry.

45. Analysis of the complexity of capital goods, particularly the technical manufacturing processes which are necessary, makes it possible to understand the nature and structure of the production routes for the capital goods being considered - i.e.: number, nature and complexity of the principal manufacturing operations, relations between levels of the route, successive states of the product, etc.

46. It is also possible to identify the principal routes for the production

of a product, and to effect comparisons between different routes. In this way, one arrives at "analogue groupings of products". An enterprise located on one of these routes is able to diversify its activity toward products belonging to the same group, or to start production of other capital goods on the same routes.

47. This analysis reveals to an enterprise or government the nature and complexity of the technologies necessary for setting up production of a given type of capital goods. Furthermore, it makes it possible to identify the actions necessary to master higher levels of complexity and to commence manufacture of new products. An important result of the analysis is that it shows that the "software" aspects are more important than the "hardware", and occupy a more strategic place than preliminary evaluation would suggest. The software of the capital goods industry consists of the know-how and technological experience held by groups of individuals in production centres or departments.

48. The capital goods industry has contradictory characteristics. On the one hand it is an increasingly sophisticated activity calling on automated and computer-controlled processes, but on the other hand it includes a large number of relatively less capital-intensive processes and in this case remains very largely a labour-intensive industry where workers play a central role in the efficient operation of the workshop. The capital goods industry therefore calls both on old skills, where experience is decisive, as well as new skills, dealing with data processing, electronics etc.

49. The skills required by an industry such as a capital goods industry depend on a high level of general and technical education. They also assume the existence of a specialized training system which gives priority

to applied training in the workshop, in close liaison with the factory. Furthermore subsequent training "on-the-job" must never be neglected, in order to increase the capabilities of workers by accumulating valuable practical experience. In addition, although training is given to individuals - skilled workers, foremen, technicians, engineers etc. - one must remember that mastery of a high level of complexity is not solely a question of skilled individuals, but also of collective efficiency, in the sense that successful operations result from the efficient working together of a team (see also Training of groups - paras. 177-179). This becomes even more true when multiple usage is a characteristic of the production process for a large number of different items of capital goods.

50. It is already known that the proportions of skilled and unskilled workers, and the proportions of skills required at different levels, vary greatly between industries, and this new method of analysis will permit these differences to be evaluated exactly. Work is now proceeding to check the results so far obtained in other industries, and as the Issues Paper says (para. 47) it is suggested that the method should be tested in several countries, in order to evaluate its effectiveness and to give guidance on the training needs of, in the first instance, the mechanical and electrical industries.

51. It is expected tha an important result of this practical research will be to make it possible to plan the development of an industry in a systematic way, so that it will start with the least possible amount of advanced technology, making the smallest demand for scarce highly trained personnel, and will then develop stage by stage, progressively adding at each stage a higher content of advanced technology, instep with the ability of the national technical education and industrial training systems to

produce the necessary higher technicians and technologists. This will reduce to the minimum the requirement of expatriate technical staff and so achieve the greatest degree of technological self-sufficiency. While staged development of enterprises does already often occur, such an "evolving factory" would directly link planning and technology choice with the availability and rate of creation of the necessary trained manpower.

52. It should be noted that while increasing technological complexity makes higher levels of training inevitable, there is also a converse need to simplify job content and training wherever possible, since experience shows that excessive technological complexity greatly increases the problems and risks of management, especially in major projects for the development of new industries.

C. Technology choice

53. Selection of the right level of technological complexity to enter a new industrial field is critical. It depends on training and has immediate training repercussions. Some of the numerous considerations to be taken into account by national planners include:

(i) Existing availability of trained people at the levels and in the numbers required - and at the location where the new project or industry will be situated. (If not, are trainable people available? Or can they be attracted to the area? Are there houses for them? All these are basic points, but experience shows they are often overlooked in planning.)

(ii) If (as is probable) there are not sufficient trained people already available, are there facilities, but especially is there time, to produce those that don't yet exist?

(iii) The need to avoid over-complexity of technology has already been mentioned: - for management reasons; and - to avoid creating excessive training demand beyond the capacity of the national training system.

(iv) Prestige and false pride can be a serious obstacle. The sponsors of the project say "we must have the best" by which they mean the latest and most complex technology. They take this position regardless of the absence locally of the industrial infrastructure on which the foreign technology is based in its home country.

(v) The effect on employment, as an element of national policy.

54. In this connection, developing countries face an unpleasant dilemma. While the tendency in the industrialized countries is always for fewer workers to be needed to produce a given quantity of goods, yet the need in developing countries is for more employment.

55. Productivity versus "employmentivity". The technical efficiency of industry is measured by productivity, and it is in this sense that figures of comparative productivity are quoted in the Issues Paper (para. 10). Developing countries, too, need technical efficiency, so in many industries they have no choice but to keep pace with productivity "improvements" made by industrialized countries. But for developing countries higher productivity is not necessarily an improvement, since their even more pressing need is for more work places. Nor do they wish to have to use ever more and more scarce capital to create each new work place. The capital investment needed to establish modern, mechanized factories is enormous in relation to the employment opportunities they give.

56. Not only do they employ fewer people than the less technically efficient, older factories they replace; but modern high technology production units can also have a serious negative effect on the traditional sector, so that overall employment is actually reduced. The problem is greatest when there is a traditional sector producing consumer goods of lesser but satisfactory quality, which will be put out of business by the advent of the new industry.

57. Developing countries need therefore to think not only of productivity but of an opposite concept which one might call "employmentivity" - not how few but how many people can a new industry employ.

58. The conflict has been most clearly experienced and understood by India. A classic instance can be seen in the coal mining industry. In 1974, following World Bank and other studies, a decision was taken to give priority to the power sector. Since power generation in India depends on coal, of which India has vast reserves, this immediately meant a major effort to increase production of coal. The Indian coal mining industry has been based on traditional methods with much hand work and few machines. But big increases of production could only be achieved by the introduction of mechanized methods, which not only increase production, but also greatly reduce the number of workers required. After careful consideration, it seems a conscious decision was taken by the Government of India to introduce mechanized methods, in order to achieve the essential big increases of production, but to do so only in selected cases, where the technical conditions offered the biggest comparative advantage, and not to disturb the traditional pattern of coal mining generally, which employs nearly one million people.

59. There are other developing country governments which have also taken conscious decisions not to introduce machinery if there are people able and willing to do the work. But labour-intensive methods can only be used in some situations - in others the loss of technical efficiency is too great, and more efficient mechanized methods must be chosen. The situation is summarized clearly by Rana K.D.N. Singh, former Joint Secretary in the Ministry of Industrial Development of India, in a study published by UNIDO and quoted elsewhere in this Background Paper 4/. He says "The appropriateness of capital-intensive technology also needs to be carefully assessed. The cost of maintaining capital-intensive machinery is high. Technology in certain industries such as petrochemicals and fertilizers is capital intensive, and labour-intensive techniques cannot be substituted, except in certain areas such as material handling or packing. Certain labour-intensive techniques, developed because of the high costs of labour in industrialized countries, have little relevance in developing countries, and may prove expensive to acquire and to maintain. In general, enterprises in developing countries should avail themselves of labour-intensive techniques, provided that a basic competitive level of productive efficiency can be maintained."

60. It is necessary to draw attention to these important and difficult decisions which have to be made by planners in developing countries, but there will be in any case a vital need for developing countries to raise

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4/ "Guidelines for the organization of foreign technology in developing countries", UNIDO, 1973.

technical standards in certain high technology industries which are inseparable from a modern way of life, and this can only be achieved by more and better training of industrial manpower.

61. Requirements for selecting suitable technology. To be able to make the right choice of technology in a situation with so many conflicting requirements the national technological planners need cool heads, wide experience of business and government procedures, and knowledge of national economic and social policy. Above all, they need the support of an excellent information bank. This whole combination of experienced negotiators with a sound information base is what UNIDO seeks to create in its support for the development of national industrial development infrastructure organizations.

D. Advancing technology

62. The present is a time of rapid technological change which is causing great disturbance to established patterns of industry and employment in developed countries, and will inevitably have comparable effects in developing countries as time goes on. The nature of work is changing - old jobs are disappearing and new ones are beginning to replace them. As this happens so training needs change and training systems must adapt accordingly. Sometimes the full significance of these new technological discoveries cannot immediately be fully appreciated.

63. This is a difficult and alarming situation for the developing countries, and the United Nations organizations will strive to enable them to keep their industrial training up to date with technological changes.

III. STRENGTHENING NATIONAL TRAINING SYSTEMS

A. Estimating the need: manpower planning

64. Because training of industrial manpower is expensive it is as important not to duplicate or over-provide training facilities as it is to provide enough training. This points to the importance of manpower planning to try to determine the quantity of training needed.

65. If no attempt is made to identify the manpower needs of industry, nationally and regionally, in the short, medium and long term, it is impossible to determine the desirable intakes at technologist, technician and skilled worker levels, or the appropriate numbers of places in universities, technician education, and technical/vocational schools. In the absence of effective manpower planning the numbers in training usually relate to some legal requirement, the capacities of institutions, or social pressures, rather than to industries' needs. The actual numbers may bear little resemblance to national requirements - with resulting large surpluses or shortages in evidence.

66. An important question in manpower planning is whether there will be too few or too many trained people for industries' needs, and often the national training organization's preocupation is to iron out cycles, so that enough people are trained in lean times to meet industries' requirements when prosperity returns and skill shortages become the problem.

67. A decision is needed whether to give priority to train people who are already in employment, or before they find work. The significance of this type of decision lies in motivation: a trainee who already has a job knows that what he is learning will be used in his work (he may already have felt

the need for it), while his employer is concerned because he is paying the trainee's salary and expects improved work to result from the training. As a further consequence the employer takes greater interest in the content of the training. The efficiency of training will be increased if both trainee and employer have strong reasons for wishing the training to succeed.

68. Especially in the present changing state of technology manpower plans should be constantly up-dated and amended. There should be a continuing effort to match more accurately the future needs of industries (which they themselves often do not see clearly), with the present input into the technical education and training systems (which may be two or three years before they emerge to meet the requirements of industry). It is a daunting task even when the national information base is good.

69. Manpower planning is always a matter of balancing advantages and disadvantages. Paragraph 18 of the Issues Paper suggests that in a situation of uncertainty it is perhaps preferable to train more people than are immediately needed, so as to prepare for possible increased demand in the future. While this is certainly a solution to one problem - that of a shortage of trained people at a possible future time when development may critically depend on a sufficient supply of skills - it immediately creates other problems less dramatic but nevertheless real.

70. Thus over-training in terms of numbers results in labour surpluses - and can amount to training for unemployment. Over-training in terms of levels also results in surpluses, even though these are less evident since the people concerned are under-employed rather than completely without a job. Both un- and under-employment are socially undesirable and as soon as

people realize what is happening it will affect their incentive to learn. (Over-training too, can be the immediate cause of a "brain drain"). All this is wasteful of national resources - money, staff and training facilities - and it is the business of trainers and manpower planners (working together - as they should but too often fail to do) to weigh up such advantages and disadvantages to try to arrive at the best national policy in the circumstances of the time.

71. Here it must be said that manpower planning/programming has limitations for practical purposes that even its practitioners admit and to reduce the broad approximations which can make national manpower planning too near to guess-work to be reliable for decision-making the scope of planning can be restricted to individual industry sectors.

72. This is relatively successfully carried out in a number of countries. However, in planning on an industry sector basis it must be remembered that industry always (understandably) presses for too many people to be trained, while governments have to think of other effects as well, and a well-balanced compromise has to be found. Industry must always be associated with manpower planning, but should not be allowed to have the last word.

73. Although manpower planning is important for the efficient use of human and financial resources it can become a hindrance rather than a help. There is a tendency in some developing countries to place too much reliance on manpower planning and to defer decisions and action until a total national manpower survey has been carried out and completely analysed. It is much better to commence and continue training in areas of clearly

defined need, in parallel with manpower planning, and to refine the training plans as better data become available.

74. To conclude: even approximate plans are better than none - provided practical training is not held up and manpower planning and training proceed together. Manpower planning undertaken in a pragmatic manner, acknowledging its limitations, should help to reduce skill shortages, underemployment due to overtraining, and resultant waste of human and financial resources. The United Nations organizations and ILO in particular are continuing to assist developing countries' own efforts towards more effective and reliable manpower planning, and it is urged that all long-term co-operation arrangements in favor of developing countries should always include provision for manpower programming to determine training needs.

B. Organizing a training system

(a) Responsibility for industrial training

75. The process of preparing a person for skilled work in industry has four stages:

(i) general education;

(ii) technical and vocational education (or technical and vocational studies within general education);

(iii) basic practical training;

(iv) specialized sectorial training.

76. Taking each in turn:

(i) General education

77. Purpose and content: the role of education is essentially to develop

the individual as a person, able to participate fully in his society. It should instill the motivation and the attitudes to contribute to the development of the individual and the community, in harmony with the national cultural identity. In particular, education should develop close links with the world of work, so that the individual is well prepared for his entry into active life and is able to choose his career more wisely.

78. A basic education during 8 - 10 years is often regarded as a pre-requisite for further education or for training, in that this will ensure literacy and some fundamental knowledge and attitudes. In particular, basic education must give an appreciation of national development and respect for productive work.

79. Responsibility and cost: general education is always part of the function of the national (or regional or state etc.) education system, and the cost falls on the national education budget.

(ii) Technical and vocational education

80. Purpose and content: to provide a technical and scientific base for a technical career of some sort - not necessarily in industry. If the person is not yet employed his specialist subject will not be known and training must be general.

81. Responsibility: technical and vocational schools and colleges generally come under the Ministry of Education in both developed and developing countries. There are some exceptions, for example in Zimbabwe, where the technical education system (including Polytechnics) comes under the Ministry of Manpower Development. The aim is said to be to achieve a

close link with training for industry, and this it certainly does (perhaps even too close, since the technical colleges are expected to do things which are outside their function).

82. Cost: the cost of the technical and vocational education system almost always falls on national sources, whether central or state governments. Users, including industry, may be asked to pay fees, but these seldom represent the full cost and there is a large element of subsidy.

(iii) Basic practical training

83. Purpose: to give the trainee - regardless of the level to which he or she may later rise - knowledge and experience of the basic manual skills in use throughout industry.

84. Content: basic hand-skills, followed by initial aquaintance with processes of the trainee's selected specialist trade or occupation. This stage of training can be said to give "technical literacy" in the fundamentals of workshop practice.

85. Responsibility: this stage of training used to be carried out under apprenticeship arrangements, initially to an individual craftsman and later to an enterprise. Now in large enterprises it is often carried out within the enterprise but off the job. Smaller enterprises may club together and set up a shared training center on a co-operative basis. In some countries basic training is given in training centres provided by the national training system.

86. Cost: many nations have financial incentive schemes to encourage

enterprises to carry out more training than they require for their own needs, in the interests of the country and of industry as a whole. Even if the training benefits only the enterprise the system may provide for the enterprise to be recompensed for the cost of training, in order to encourage enterprises to train their staff well.

(iv) Specific sectorial training

87. Purpose: to equip a new employee with skill and knowledge needed to do a particular job in the enterprise, or to give him further training to improve his skill, or to re-train him for another job in the enterprise.

88. Content: technical processes associated with the trainee's job. Only enough training is given in the first instance to enable him to do the immediate job.

89. Responsibility: this always falls to industry, since training of this kind can only be done within the enterprise, or under arrangements made by it.

90. Cost: this may well be the most expensive of all the four stages of training, costing more than the other three put together, due to the use of expensive equipment and materials.

91. The final level to which stage (iv) of the training process has to attain is set by the technology, and will be as high in even a least developed country as anywhere else. Therefore in such cases, as the Issues Paper points out (para. 27), the parts played by the national training system and the enterprise's own training system are reversed. In the case

of an occupation with a high technology content, the major part of the total training process - perhaps even the whole of stages (ii), (iii) and (iv) - then falls on the enterprise, the opposite of the developed country situation where stages (ii) and (iii) would both be undertaken by the national system, leaving only stage (iv) for the enterprise.

92. This different division of responsibility greatly affects the costs of training from the point of view of the enterprise, which in an extreme developing country situation can become very large indeed in comparison with the developed country norm. For smaller enterprises without large financial resources these high costs can prove a barrier to working in developing countries, although the enterprise may be well suited to it.

93. In other stages of training also, the cost can fall on different agencies. For example, the most effective basic workshop training, (stage (iii)), is given off the job. If suitable national training centres exist the cost may be met by the national training system. If not, the enterprise has the added expenses both of setting up the training centre, and of paying the additional recurrent costs of operating it.

94. Similarly with related theory training for high technology industries (especially the technicians who will be responsible for complex production processes). These workers (supervisors, technicians and skilled operators) will get their related theory training in the national technical education system if it is of a high enough standard. If not their enterprise will have the added expense of setting up this training also.

95. The point about both the situations just described (basic training off

the job and related theory) is that in a developed country they would nearly always be automatically taken care of by the state system, and need not even be considered when planning a new project. In a developing country, on the contrary, they must be considered early, carefully, and in detail, since they may make the difference between the success of the project or failure.

Main responsibility for training of industrial manpower

96. The form and structure of institutions used for training industrial manpower vary greatly around the world. In some countries the educational system plays a major role, offering courses and corresponding qualifications over a wide range of fields and levels. At the other extreme are situations where the extent of involvement of the educational system is minor, and industry itself organizes training. There is also an intermediate solution, where training is carried out by government agencies through vocational training centres established for different sectors of industry, or according to other criteria.

97. Should training of industrial manpower be organized on a national basis?

(i) Because this avoids duplication of training common to all industries; and

(ii) Because this simplifies administration.

98. Or on an industry basis?

(i) Because this enlists industry loyalty;

(ii) Because it allows for industry differences (attitudes, levels of technology etc.);

(iii) Because competition between industries sharpens efforts and improves training.

99. Compromise arrangements combining the merits of both are possible.

100. Should there be legislation to compel training?

(i) Because the nation demands training;

(ii) Because it is not fair on big companies if other companies do not train.

101. Or should industry be left to make its own arrangements for training?

(i) Because only volunteers will co-operate willingly;

(ii) Because industry will do more than the minimum if it is approached in the right way.

102. Again experience shows that compromise is possible and necessary. There must be basic government legislation in order to show determination that training shall take place, but the system should be such that the law need only very rarely be invoked. It should be borne in mind that if government training officers are described as Inspectors, the voluntary co-operation of industry may be lost.

Paying for training industrial manpower

103. Policies with regard to financing of industrial training are of great importance, and they may include incentives to industry to carry out systematic training, tax levies to support training, means by which to control the costs of training, and incentives to the individual to improve his qualification.

104. The key to willing investment in training by industry is direct participation in both planning and operating training by means of a

tri-partite scheme, representing employers, employees and government. Participation must involve shared responsibility for training - consultation is not enough. Industry itself has capability to assist with training, but needs to be given the means to co-ordinate its contribution.

105. A typical question in many countries is who should pay the cost of basic training (no one questions that industry will pay the cost of specialized sectorial training).

106. Industry should pay? "Yes, because industry benefits." But not all industry benefits equally. Conditions differ radically between large companies and small ones. So sharing cost fairly between companies in an industry is essential. This requires government intervention through for example a levy-grant scheme.

107. The government should pay? "Yes, because people are the nation's greatest asset, and investment in their training is a government's first duty". This is quite true, but if industry does not contribute, then:

- it takes training for granted;
- it does not ensure that it gets value for money;
- it loses interest generally.

108. There is therefore no final answer to this debate, which could go on endlessly. What matters is that all concerned should appreciate the extreme importance that training of industrial manpower should be paid for, because it is an essential investment which returns high dividends.

(b) Co-operative training

109. However much or little central government effort is put into meeting the training needs of industry it is primarily on industry itself that the burden of training falls, and if no one else does anything about it then industry itself must.

110. Large enterprises can if necessary provide for their own training needs unaided, but medium and small enterprises cannot, and even large ones welcome help. A solution which meets the situation well and has several other advantages is "co-operative training", in which enterprises themselves, without outside coercion or support, club together to set up a joint training organization, and share the cost.

111. Such co-operative training ventures may be of various kinds, e.g.:

(i) industry co-operative schemes - based on the fact that enterprises that share a common technology have common training needs;

(ii) area co-operative schemes - serving a limited geographical area - which may be of two types:

- single industry schemes (e.g.: all engineering companies, but including also engineering elements of process companies);
- multi-industry schemes, which are less common, but are particularly valuable in developing country situations.

112. Local schemes are often set up by and for medium and small-size enterprises, but may in addition have large enterprise members (and in this case may derive valuable advantages from the extensive facilities of these members).

113. The important characteristic of co-operative training schemes (also known as group training schemes) is that they can adjust their output and can therefore get on with meeting the training needs of their member companies in the simplest and most direct way - adjusting their output to the exact requirements of their members, who control day-to-day operations through a governing committee on which all member companies are represented.

114. The training facilities offered by group/co-operative training schemes vary in direct proportion to the interest in training of their members. One scheme may do no more than employ a joint training advisor on an itinerant basis (but even this is a valuable facility). Another scheme may in the course of time develop a well-equipped training centre and offer numerous services to its members - not limited to training but including also technical consultancy. In such schemes the training given will include both initial and upgrading/continuing training, and short courses for supervisors and managers.

115. In all cases the essential merits of the idea are its simplicity, directness, responsiveness to members' needs, and total independence from outside support or interference. It is particularly suitable for many developing country situations and deserves encouragement and support.

116. The position of smaller enterprises is of special interest to a growing number of developing countries who realize that it is only on a basis of healthy small enterprises, especially in rural areas, that large enterprises can evolve, and that the smaller ones will always provide the majority of work places and opportunities for most of the population. These small enterprises cannot afford to establish their own training

facilities, however much they may believe in the value of training. But it is possible to convert them from unwilling payers of a training levy from which they get nothing back, to enthusiastic members of a co-operative group training scheme. The national training organization can help them to organize themselves into groups, and provide a training back-up service through the group.

(c) Standards and certification

117. The importance of certification is referred to in the Issues Paper (para. 81) in relation to the need for mutual acceptance by developing countries of each other's qualifications, as an aid to the free movement of skilled people between countries in support of co-operation among developing countries (CDC).

118. This is one aspect of a wider subject which has importance for training of industrial manpower in general and on which much work is already being done by the international organizations, especially the ILO. The subject comprises:

(i) standard setting;

(ii) skill testing;

(iii) certification;

and is of interest to all levels of employees, but in particular to skilled workers, technicians and engineers (technologists). It is of equal concern to employers and it has often been from them that the first initiative has come. To an employee a certificate of skill is the means of getting work, while to the employer it is his guarantee that the candidate can do the job.

119. Skill testing (trade testing). It is essential in any country for

employers to know the standard of workers who come to them for jobs, and therefore early on in industrial development there is a movement to set up a system of national skill testing. Initially this was limited to the basic skilled worker trades - mechanic, carpenter, builder, etc. - but these days the basic trades also include motor-vehicle mechanic, electrician, etc. Such systems are still the basis of industrial life in many developing countries, giving both employers and employees a common yardstick for measuring skill, and so permitting free movement of workers between jobs within the country.

120. It is natural for these trade standards to be made the basis for national wage agreements, and as soon as that happens a number of consequences follow:

(i) there is great concern on the part of both employers and employees about the exact content of curricula for the tests;

(ii) test certificates become an even more valuable commodity;

(iii) there is pressure to extend the range of occupations covered to include non-transferable operator/production skills and semi-skilled trades;

(iv) in countries where there is an apprenticeship system a link may be formed with the trade testing system so that one test serves for both.

121. Many of these national skill testing systems have now been in existence for many years, continuing to serve a basic industrial need, and in the course of time some of them have become greatly elaborated. From the first the ILO has been active in this field and continues the work on a considerable scale, being involved in the introduction of new schemes in

countries which have never had them and have come to recognize their value, and in other countries overhauling schemes which in the course of time have become so encrusted with complications that they require to be brought up-to-date and trimmed back to first principles.

122. Mutual recognition of standards. Because marketability is the essence of trade testing some developing countries have adopted test standards in use in developed countries, so that to a certain extent mutual acceptability of qualifications already exists at skilled worker and technician levels on a regional basis. It is the evident benefit of this to certificate holders which leads to the desire expressed in the Issues Paper (para. 81) for action to increase and extend it.

123. Action will be needed not only at skilled worker level, which is relatively easy, but also at the next higher level of technician, and ultimately at the level of technologist/engineer. At these higher levels the ideal of mutual acceptability becomes exceptionally difficult, because they principally involve knowledge of theory, and the academic content of curricula is very difficult indeed to standardize internationally.

124. The training of engineers and technicians continues to be a subject of major importance to UNESCO. Reference is made to it in the Issues Paper (para. 65 (ii)) in relation to the need for curricula to reflect the changing nature of technology, and to include the wider range of subjects consequently required by engineers and technicians to use and plan modern integrated multi-disciplinary systems.

125. Some points relating to skill tests. In regard to standard setting,

skill testing and certification for the semi-skilled, skilled worker and technician levels on a national scale experience shows that considerations of general importance include the following:

(i) Nearly all skilled occupations require knowledge of related theory as well as of practical skills. Therefore most skill tests also include the testing of this related theory needed to perform the job. In preparing syllabuses of theory content it is essential that industry should always be invited to co-operate with the technical education system, since the relevance of the knowledge to the exact needs of industry is critical to the value of the training.

(ii) In developing countries people can acquire skill in a number of ways. All such skill is valuable to increase the national stock, and thus ultimately the national technological capability. Therefore there should be a means for anyone claiming to have skill and wishing to use it within the country to be able to do so, and the national skill testing system is the way in which this can be done at skilled worker level. (At engineer and technician levels the comparative value of other countries' professional qualifications is a most complicated subject, as has been pointed out above (para. 123), which has exercised both national authorities and UNESCO for many years already and is far from being resolved yet.)

126. Some of the ways in which a skilled worker can acquire his skill other than through the national education/industrial training system include:

(i) learning it in the informal sector - which is far from impossible in countries with a strong tradition of handcrafts;

(ii) bringing it in by immigration from abroad, e.g. someone marrying a local person;

(iii) studying/training abroad, whether under official sector technical co-operation arrangements or through private sector arrangements (company to company);

(iv) emigrating for work and returning later (perhaps many years later) with valuable skills learned abroad. This is the good side of the migrant labor situation, which is generally regarded as draining necessary skills away from developing countries.

127. For the good of the country its national trade testing system should guarantee the right to all such people to be allowed to take the national trade tests at any level, without restrictions or conditions other than payment of the fee. (Obviously they should then also have the right to be paid the full rate of salary appropriate to people holding the test certificate at that level, without discrimination.)

128. There is a further practical point to be taken into account. A complete test for a fully trained skilled worker or technician has to be long and thorough. Therefore national training organizations are moving away from end-testing to a series of "phase tests" at intervals during training. Nevertheless for the reasons given above (para. 126 (ii)) the right to take a single complete test should always be retained as an alternative to the system of phase testing.

C. Getting the best results

(a) Links

129. The efficiency of any machine depends on the smooth running of the

links between its parts. This is equally true of the national industrial training machine of a nation. It must have good links if it is to operate efficiently.

130. There are a great many references in the Issues Paper to links, and experience shows that their importance can hardly be overestimated. All too often situations are found in countries which can least afford to waste limited resources where waste - human, financial or both - is in fact occurring, because one group or interest in the country is unaware of what another group or interest, with the same general objective, is doing.

131. The link mainly referred to in the Issues Paper (paras. 38 etc.) is that between the national education and training systems and industry. This is the central link which determines the overall efficiency of a national training system. It is the basic relationship between the national education and training systems and its industrial "customers" and the following are some comments on why this link is so important. It is mainly a matter of psychology.

132. Training of industrial manpower cannot result without co-operation between industry as the user of training, and the education and training systems as the supplier of training. Co-operation cannot be secured by compulsion, but only by consent. Legislation should not be relied on. The basic law should be there but unused - to guarantee the value of the system for the use of society, not to compel action by unwilling parties. If they are genuinely agreed, they will not need to enforce legislation.

133. When effective control passes from government to industry, through

tripartite or similar arrangements, then:

(i) industry enters into training with enthusiasm;

(ii) salary problems of instructors may be solved;

(iii) collection of money is made easier.

134. There are also a number of other links which can function to the benefit of industrial training in developing countries - or conversely to its detriment if they do not function. Some of these other links are:

(i) government - employers - employees;

(ii) industry planners - industrial training planners;

(iii) public sector - private sector;

(iv) Ministry of Education - Ministry of Labour - Ministry of Industry;

(v) education - world of work;

(vi) training associations;

(vii) national co-ordinating focal points.

(i) Government - employers - employees: this is "tri-partism" in the ILO's terms. It is a fundamental relationship in all national activity concerning industry. Training should be governed by a body representing the main interests - i.e. government - employers (industry) - employees, plus trainers and educationists.

(ii) Industry planners - industrial training planners. These two groups are normally located in different ministries, and experience shows that even when only a short distance apart they may remain totally unaware of each other's activities and plans. This is a potentially dangerous situation for a country planning an industrial development program or

project, since it may result that a project is financed and about to be physically embarked on before anyone thinks to ask either whether trained people exist, or whether it is within the capacity of the national training system to do so.

(iii) Public sector - private sector. There can be a gap here leading to duplication of facilities when one could serve for both. Common membership of the national industry association should overcome this. For purposes of technical efficiency and industrial training nationalized industries should be no different to any other and should associate with the private sector. What is at stake is the development of the country as a whole, and both public and private sectors must co-operate in this endeavour.

(iv) Ministry of Education - Ministry of Labour - Ministry of Industry. There is a tendency in many countries for various aspects of industrial development, employment and training to be divided between several ministries. This can lead to lack of co-ordination unless efforts are made to keep them in touch with each other. Where such a link works effectively information such as that given by analysis of complexity (paras. 45-50) about future training needs will be quickly acted on.

(v) Education - the world of work. As has already been said (para. 77) the role of general education is essentially to develop the individual as a person. It should instill motivation and attitudes in harmony with national cultural identity. In particular, education should develop close links with the world of work so that the individual is well prepared for his entry into active life and is able to choose his career more wisely. This refers to primary and general secondary education and is different to

the technical and vocational education - industry link which was referred to above (paras. 131-132). The significance of the link from general education is that attitudes developed early in school life persist and an early lively interest in industry and the skills of making things is a necessary foundation for national technological advancement.

(vi) Associations of trainers. Trainers like other professionals gain strength from sharing experience and ideas. If there is no national training association it is a good idea to form one.

(vii) The national co-ordinating focal points, referred to in the Issues Paper (paras. 53 etc.) and elsewhere in the Background Paper (paras. 197-208) are another form of link - this time between training interests in the developing country and training sources in the world outside.

(b) Efficiency

135. The efficiency of a system for training industrial manpower can be judged in various ways, positive and negative. (Objective measurement is much less easy). It is also important to distinguish between "efficient" and "effective". For example in the use of manpower, "efficiency" refers to their productivity and "effectiveness" to their deployment in the correct tasks.

136. The efficiency/effectiveness of resources provided for industrial training can be divided into:

- physical;
- human;
- financial.

137. Other measures of efficiency are:

- waste - social and financial;
- mismatches and discrepancies.

138. Some of these forms of evidence of inefficiency are referred to in the Issues Paper:

- deliberate over-qualification of workers (although with the intention of saving more resources than are wasted)(para. 18);
- need for validation of training methods to determine the efficiency of training (para. 34);
- over- and under- qualification; shortages and surpluses, resulting from lack of co-ordination between the education or training system and industry (para. 38);
- drain from industry to the service sector, and other losses from industry due to lack of incentives (para. 38);
- waste and high costs due to poor links between education or training and industry (para. 44);
- expensive mal-adjustments between training requirements of jobs and training actually received, resulting from lack of a considered manpower policy for industry (paras. 45 and 46);
- losses of production and income (which may be on a huge scale) resulting from late start-up of a major project due to lack of trained workers (para. 51).

139. A study undertaken by UNIDO in preparation for the Consultation [5/] reported, in answer to the question "How efficiently used are financial resources? Human resources?", on the situation found in representative developing countries in different geographical regions.

140. "Financial resources: unfortunately the evidence suggests that financial resources are not always efficiently used, for instance in one country there was found to be an over-supply of university education, little or no technician training, and considerable duplication and under-utilization of apprentice training capacity, while provision of education and training facilities often reflected social pressures rather than identified needs."

141. In another country the symptoms were different. Training levies collected from industry had built up big unused balances, causing the impression that the levy is a tax and consequent disillusionment on the part of industry with the government industrial training system. Physical resources had unused potential - expensive machines were idle during long academic holidays and a shift system was almost unknown.

142. Human resources. Regarding the use of training staff it was also found that there was a serious loss of efficiency in the use of resources. In one country industrially experienced instructors were promoted into administrative posts, so failing to use their experience to the best

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5/ TETOC - "Training of industrial manpower: the potential for more effective use of existing training facilities in developing countries", UNIDO, 1981.

effect. In another there were virtually no instructors with industrial experience in government training centres (which provide the majority of training at skilled worker level) since they are paid on a government salary scale, below the market rate in industry. This means that the government training service can neither recruit nor retain properly experienced instructors, and the quality of training suffers.

143. In many cases training did not relate to job requirements. In other cases no training was given when it should be. For example, supervisors were selected from good craftsmen, but not trained in supervisory skills, cost control or work planning. Alternatively, they were appointed from surplus graduates with little or no relevant practical experience and a reluctance to go on the shop floor. Neither of these without additional training can give efficient service to their enterprise.

144. Significantly the consultants found there was a direct relationship between the degree of involvement of industry in the national training system and its efficiency.

145. It is clear that constant critical review is needed by all concerned with investing in improvements to national industrial training systems - including not only external co-operators providing resources but also national governments themselves. There is quite sufficient of the sort of evidence quoted above to guide national authorities to the areas where improvements can and should be made.

D. Some training objectives

(a) Specialization or generalization

146. The Issues Paper points out (para. 35) the paradox resulting from the constant raising of levels of technological complexity in industry - that there is simultaneously a need for more highly qualified specialists, and for more widely qualified generalists to deal with the new generation of machines and processes now coming into use. This situation requires thought and action by both educationists and training planners in developing countries.

147. At semi-skilled levels everyone is a specialist. The same is true of the skilled process operator in industry, who knows everything there is to know about one job. Above that - i.e. at skilled worker, technician and engineer levels - as technology spreads and multiplies it becomes increasingly necessary to consider what width of knowledge to attempt to teach in comparison with its depth.

148. Looking at each of these three levels in turn:

149. Skilled workers. At one time, when the whole of industry came within the mechanical area, the skilled worker could be expected to have some knowledge of the whole field of technical processes. (Although there was early separation between trades preparing hot metal and those working with cold metal, and of course between heavy and light industry - machines and instruments).

150. Then new discoveries began to create new areas of knowledge and skill, and new trades and occupations - starting with electricity. Now the boundaries between what have grown up as separate subjects are being blurred and dissolved, since as the Issues Paper says (para. 23), "a

machine is no longer simply a mechanical being, but also an electrical, electronic, hydraulic and even chemical being".

151. Some skilled workers will therefore in the future need to cover wider fields than the traditional trades - the most obvious example being the maintenance workers whose training is discussed in a later section (paras. 171-176) and the question is how best to achieve this change within what has become in many cases very rigid national industrial training systems - even in developing countries where the systems are relatively new. It is hoped that participants will be able to bring some new ideas to this issue, since there is no doubt that new thinking will be needed, which will be likely to disturb some long-held beliefs and conventions.

152. The word "polyvalent" is used to describe the sort of training and education which will need to be devised. Another way of describing it is to say that a modular approach will be needed, that is the organization of skill and knowledge into a series of relatively self-contained units, from which a selection can be made to build up an appropriate total content to satisfy each different job specification. This is in fact what the modular system was devised for in the 1960s, although the need was not then so extreme as it is now.

153. Technicians. Many of the same considerations apply to technicians as to skilled workers, but their training must include an increased content of theory and underlying principles. The inclusion of this theory content, which is learned in the national technical education system, will make it necessary to involve the national education authorities in all the discussions, and they have in most cases, with the encouragement of UNESCO, already begun to consider these questions.

154. Engineers. The position at the top of the scale of skill, i.e. the engineers and other technologists, is similar, but with the important addition of the need to be able not only to do the new kinds of multidisciplinary work but in addition to be able to plan and control them. Planning includes both the organization of work - management - and also the designing of machines and processes. In the latter lies the need for attention to the curricula of the training of engineers which is referred to in the Issues Paper (para. 65 (ii)). This consideration of the curricula for the training of engineers for present day conditions should also include appropriate technology - both in the sense used in this Consultation, i.e the choice of the right technology for the task, taking into account all the circumstances in which it will be applied, and in the other perhaps more widely used sense of designing new but simple technical solutions to practical needs widely experienced in developing countries, especially in rural areas.

155. It is important to appreciate that the resulting new curricula for the training of engineers will not be the same worldwide. There will never be an ideal training content for all mechanical or civil engineers (or whatever new names emerge from the re-thinking process). What they should learn depends on what they need to know, and this differs fundamentally according to the circumstances of each country, and the circumstances of industry within that country. All engineers will continue to need a common core of basic scientific and technological knowledge, but it will be placed in one of a range of different settings, suitable to each country's or region's individual circumstances. In particular in developing countries the training of engineers must seek to build up their capacity for engineering conception and design, and their ability to adapt and create new technology suitable to meet local requirements.

(b) Continuing training

156. The prospect of further new technological innovations and resulting changes in the nature of work make continuing training equally inevitable, and it is already normal in some industries, especially the electronics industry.

157. In the past, training for an occupation was a once-for-all matter at the beginning of a young person's working life. In the developed countries this is now having to give way to a concept of "continuing training" taking into account the need for re-training in mid-career for new occupations, as a result of the replacement of old technologies by new ones, and for continuous up-dating of technical and professional skills.

158. These needs also exist in developing countries, with the addition of skill improvement for existing workers whose training was incomplete or obtained in the informal sector. There is often a big demand for this, both from industry and from workers. National training systems should strive to meet these new needs as fully as possible, and this will mean in the future that continuing training will be a normal part of the pattern of training.

159. Some developing countries have already successfully introduced continuing training - sometimes for as much as five months every three years. Most developing countries will be unable to undertake continuing training on this scale, but nevertheless in their case repeated training must be accepted, meaning occasional training as needs arise, but not on a regular basis. Experience in the industries where continuing training is already a feature shows that it can quickly gain acceptance, given the right incentives, but also that it is inevitably expensive.

160. Continuing training is not only something that is desired by the employer, because of the requirements of his work, but is also something which should be the normal right of an individual worker in order to advance himself and develop his personal career. The situation already referred to, where an older worker who did not receive full training in his youth wishes to be further trained, is not only a means for him to advance himself, but also an investment in the efficient use of human resources.

161. It should be noted that administrative responsibility and payment for further continuing training need not necessarily rest with the same organization as for initial training. Some countries treat initial training and subsequent further/continuing training as separate subjects. While this will be unsuitable when continuing training for all soon becomes normal it has no apparent ill effects. What matters is that further/continuing training does take place, by whatever arrangements.

E. Some types of training

(a) Training of technicians

162. Throughout industry worldwide there is a need for a grade of technical specialists between the engineers who design machines and the skilled artisans who build and repair them. The need for this middle grade is vital for all countries and industries. They must be able both to understand the technical theory used by engineers and to carry out the practical work of skilled workers.

163. Although the need is universal the concept of a separate grade for this function is not found in all developing countries. The reasons for this are historical and social. The importance of middle level specialists

- often known in English-speaking countries as technicians - has been increasing in developing countries as the level of technology advances, and their separate status has therefore only relatively recently begun to be recognized. In many developing countries there still exists a prejudice that the only socially acceptable grade is the engineer or technologist, and where this social demand is reflected in the structure of the technical education and training system the result is an over-supply of graduate technologists and a shortage or absence of technicians. This may be aggravated by the prevailing wage and incentive systems in some countries.

164. Clearly in these circumstances graduates who do not obtain work at professional technologist level take positions at technician level, but they are less effective, because their training has not given the necessary emphasis to practical skills.

165. Quantity of training. Summarizing the position regionally: In Latin America the concept of a separate category of technicians has not yet been generally accepted, and where technician training has been introduced it has sometimes met opposition not only socially but from the university system. Most technician level work is performed by surplus or drop-out graduate engineers, which is wasteful of university level training resources and also (for the reason given in para. 164) is efficient in producing people with the skills industry needs.

166. In Africa and the Middle East many countries are building up strong technician training programmes, and in the case of the African countries the shortage of graduate engineers makes it impossible to fill technician posts from that source.

167. In a number of Asian countries the special importance of technicians has come to be well understood, and the Colombo Plan Staff College for Technician Education established in 1975 is influencing training patterns throughout the region.

168. Quality of training. There is always a tendency for technician level training institutions and programmes to move further up the academic scale. When this happens the training they give becomes too theoretically biased and practical skill instruction suffers. Vigilance is therefore needed on the part of the national training organization since the whole intention of technician training can be endangered. The best arrangement is to establish a close relationship between the training institution and industry, whereby technician trainees are already employed by companies. Industry will then ensure that curricula remain relevant and co-operate with the training institution in providing essential practical experience. Well defined and monitored training standards for technicians are also important.

169. Among characteristics desirable for successful technician education are the following:

- Students/trainees should preferably be in employment before starting their course and have had at least a few months actual working experience.
- They should possess both sufficient academic ability and good practical aptitude. (It is sometimes argued that technician trainees should previously complete a full craft training. This is not necessary but the practical ability to do so is.)
- Courses should preferably be of the sandwich type, in order to

maintain students' contact with their employers.

- Syllabuses should be prepared jointly with representatives of industry and be continually updated in the same way.
- Courses should lead to nationally accepted standards which industry has had a share in formulating.
- Staff should have had industrial experience of the subjects they teach - part-time lecturers drawn from industry are very suitable.
- There should be visiting between technician institute and industry to encourage mutual understanding and co-operation.

170. Training of technicians is a complex social and economic issue. Long-term solutions depend on vigorous action to promote the status and training of technicians in developing countries. If psychological obstacles arise they must be overcome, since technicians are a vital necessity for all developing nations as they are for all industrialized nations. The United Nations organizations will continue to give attention to problems hindering the industrialization of developing countries, which includes the need for technicians.

(b) Training for maintenance

171. It is important to give enough emphasis to training for maintenance, because in developing countries spare parts are less easy to obtain and breakdowns consequently tend to last longer and to have more serious effects.

172. In the initial stages of establishing new industries it is naturally training for production which receives all the attention. Later however repairing breakdowns becomes the priority need and in the case of an old

industry keeping the machines running becomes all important. Thus a substantial proportion of the broad skilled (apprentice trained) craftsmen in a developing country, especially mechanical and electrical fitters, will be employed at some time or other on maintenance work, for which to be effective they must have appropriate training.

173. The importance placed by many developing countries on maintenance training has been clearly shown in worldwide studies carried out for the ILO entitled "Survey of Training Needs" in November 1980 (reference GB/214/PFA/5/4.

174. It should be remembered that maintenance for manufacturing industry takes place not only within industry - maintaining production machines - but also means maintaining the infrastructure of industry - the water, power, road, rail and telecommunications services on which manufacturing industry depends.

175. Technicians occupy a special position in maintenance, since it is they who must diagnose and correct faults in complex electronic/mechanical equipment. The engineer can locate the cause of the fault but may not have the necessary practical skill to put it right. The artisan lacks theoretical understanding to determine what needs to be done. Increasingly technicians are becoming a key group.

176. The maintenance and repair of modern machines is requiring an increasingly wide knowledge of a range of technologies, including not only mechanical but also electrical, electronic, hydraulic, pneumatic etc. knowledge. To deal with this situation maintenance workers need to have a

wide range of skills and special training. At the same time more and more maintenance in the industrialized countries is being done by replacement of a unit after diagnosis of a fault. This is causing a growing apart of developed and developing countries, since in developing countries where replacement units are not readily available it is necessary to rebuild and to make spare parts on the spot. Training for this purpose is no longer easy to find in Europe. It can still be done but requires special arrangements, which means a group to make it cost effective. The ILO and UNIDO already support maintenance training, and in view of its great importance - as all agree - it may merit even more support in the future.

(c) Training of groups

177. New production technologies are likely to influence the traditional organization of production and to place importance on training of working groups. In addition the more industrialization which takes place in the form of large projects the more important will be the training of "project teams".

178. Social aspects flowing from the introduction of new technology, which is likely to affect the developing countries in the next few years, will probably include increasing use of working groups, therefore giving rise to a need for special training methods for these groups.

179. The United Nations organizations will institute research and study into ways of encouraging developing countries' industries to keep up with changing situations, including new forms of training such as the training of groups.

F. Training of trainers

180. It appears that more attention has to be paid to the training of trainers in developing countries, since neither their built-in multiplier effect nor their capacity to innovate and conceive training programmes in response to specific needs has been clearly understood. The United Nations organizations will continue to support priority industrial training needs including the training of trainers. In particular the ILO, with the Turin Centre and the ILO Regional Centres will continue to encourage exchange of experience, including about training of trainers.

181. Training for major projects should take into consideration the need to train trainers so as to replace and increase the staff initially trained by a foreign contractor, and this requirement should be written into contracts both for supply of training services and for major project development.

182. In industry there are three principal types or levels of trainers:

- the company trainer, operating within a single enterprise or organization;
- the group trainer, responsible for co-ordinating company trainers in a number of units of a large enterprise or a whole industry;
- the training advisor or training development officer, employed by a national training organization as its link with industry.

183. The essential characteristic of all three should be that they become known and accepted by management and workers at all levels, and that they come to be thought of as possessing useful knowledge capable of contributing to the benefit of the enterprise as a whole and of individual workers. In no way should they be used as inspectors or enforcement

officers, and they should have no responsibility for collection of fees or training levy.

184. Experience shows that these concepts are not well understood in some developing countries. Where training has separate status in an enterprise it is still too often treated as a clerical function within the personnel department. There is no way that a trainer restricted in this manner can carry on the totally different function described above, and it should be one of the purposes of the national training organization to educate senior management away from this negative concept towards a positive use of training.

185. To be accepted by industry trainers must previously have worked in industry themselves and be capable of returning to industry at a responsible level. Their knowledge and experience will make them attractive to enterprises and for this reason their terms of employment must be comparable to those they can command in industry, or they will soon leave.

186. Instructors. The need for instructors, to teach groups or individual trainees off- or on-the-job, is fully appreciated in developing countries, but the one characteristic they must have for success is often not recognized. This essential characteristic is previous industrial experience, and without it the instruction given will be neither credible to the trainees, nor relevant to their future needs. Unfortunately it is often found that instructors in off-the-job training centres do not have enough industrial experience to be effective.

187. National training organizations tend to sweep this problem under the carpet, failing to match the employment conditions obtainable in industry, and then complaining of excessive staff turnover of instructors. The remedy is obvious, and those concerned with training policy should recognize that training is only as good as the instructors, and ensure that people of high caliber are attracted from industry into training.

188. The problem does not of course arise when people already working in industry are given short training courses in instructional techniques to equip them to become instructors either part time or fuli time. It should be a priority aim to encourage and facilitate this type of training.

189. There is no substitute for practical experience in industry. As ILO Recommendation No.150 (para. 63(i)) makes clear "persons engaged in giving vocational traning should have comprehensive theoretical and practical knowledge, as well as substantial work experience in the technical field or functions concerned, together with technical and pedagogical training acquired in education and training institutions". Yet governments habitually make this impossible because of the terms under which industrial training instructors are employed. Hence the necessity for para. 65(i) of the Issues Paper, which draws attention to the need for the training of trainers and instructors to be accompanied by appropriate wage policies to ensure that after training they are retained in their employment.

190. What happens in practice all too often is that instructors in government training centres (on which developing countries largely rely for their broad skilled training of craftsmen) are paid on a government salary scale which is well below the rate of salary that men of their

qualifications and experience can obtain in industry. This means that the government training service can neither recruit nor retain properly experienced instructors, and the quality of training obviously falls drastically as a result.

191. The third of the three types of trainer described above, namely the training development officer, is of special importance in developing countries, where direct contact between training and industry must be encouraged by every possible means.[6/] Training development is a responsibility of the national training system. Essentially this means going out into industry to stimulate interest in training, and to aid the exchange of information and ideas. This distinct function of training is as yet little understood in many developing countries and is often confused with the inspection of training systems. It is the special field of the training development officer. In carrying it out he must be at home in industry and a welcome caller wherever he goes. To achive this he must be industrially experienced and technically competent. His work should not be restricted solely to training but should include technical trouble shooting, since when he can demonstrate that training can increase productivity, or overcome a production bottleneck, the enterprise will believe that training pays. The training of training development officers requires special skill and experience, and must include supervised project work in industry.

6/ Industrial Training Service, "20 years of training development", London, 1980.

IV. THE BASIS FOR INTERNATIONAL CO-OPERATION

192. The above sections related to the strengthening of national training systems, illustrate the extent to which this problem is vast and complex: its analysis must be based, on the full understanding of the interrelationships between education, training and the process of industrialization. Only then can some attempt be made at programming and developing a country's human resources. It is certainly a long-run process.

193. In the short term, however, developing countries will continue to rely heavily on the developed countries for the acquisition of technology, related know-how and of the corresponding skills through international co-operation. In fact, the nature of the demand of developing countries for training of industrial manpower has evol ed considerably since the early 1970s. At first, it was acquired by individual or small groups of trainees to ensure that industrial plants operated sucessfully; more recently, developing countries have expressed demand also 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.

194. The investigations undertaken by UNIDO have shown the need to analyze the training which is provided for developing countries through assistance from national (public or private) institutions, through bilateral and multilateral co-operation arrangements, and through commercial relations at the enterprise level. It appears that training provided through commercial arrangements has become relatively large when compared to that provided through assistance; furthermore, it is likely to continue to grow in

correlation with the growth of exports of plant and equipment to the developing countries, so that a large world market for training is in the process of formation. However, this world market is a highly imperfect one, largely due to a lack of information about the existing training capacity in developed and developing countries, and the levels for which training may be provided in relation to specific technological processes. Furthermore, more analyses are required on the subject matter and content of training according to the professional categories within enterprises of different sectors of industry.

195. Enterprises in developing countries have not always recognized that training constitutes the main component of an industrial co-operation arrangement. They are generally not in a position to clearly define their own short and long-term training needs, nor to assess the capacity of a supplier to meet those needs, nor to control the implementation of the acquired training programmes. Hence, while training is expensive, the relatively weak partners from developing countries have often not been able to fully understand the importance of considering training of industrial manpower from the time a project is being conceived and of selecting a technology which they are in a position to master, thereby contributing to the establishment of a technological and training capacity. Furthermore, developing countries, while paying the prices presented to them by a supplier, have not always obtained the training programmes which correspond to their expressed demand. Many industrial projects have, therefore, ended in failure due to the lack of timely and in-depth consideration of the problems of training industrial manpower.

196. The Consultation should, therefore, consider the ways and means of

rendering the world market for the training of industrial manpower more informed and better organized.

A. The organization of demand: the possible creation of co-ordinating mechanisms or focal points in developing countries

197. The improved organization of demand, as well as more information on its nature and content, would strengthen the capacity of developing countries, at the government and at the enterprise level, to take decisions on their training needs and on the choice of partners from abroad. Furthermore, it would ensure that training is fully taken into consideration from the time an industrial project is conceived, bearing in mind the qualifications of the local population and its socio-cultural background.

198. It may therefore be desirable to carry out a diagnosis of training needs at the national level, not only from an enterprise's point of view, but also taking fully into account the structure and pattern of industry and the technology and training capacity available in the developing country. This approach to international co-operation would strengthen the capacity of decision-makers in developing countries.

199. For this purpose, co-ordinating mechanisms may be established by developing countries to provide information, stimulate and co-ordinate the acquisition of technology and skills from abroad in relation to national demand. The Issues Paper (para. 53) suggests the following possible functions for such co-ordinating mechanisms or "focal point":

(i) As a source and receiver of information, it could receive and

centralize training applications from industry and procure the means and assistance needed for surveys of existing training capacity within the country, collect and analyze information on external training supply, and disseminate information on external supply to national applicants.

(ii) At a second level of action, it could procure information and assistance for decision-makers: alternatively, it could assume the functions of a decision-making body itself, or at any rate provide the decision-makers with guidance and advice.

(iii) A third level of action would concern the organization of links between the skills acquired from abroad and the activities of the national education and training institutions.

(iv) Co-ordination mechanisms would also have a major role in relation to co-operation among developing countries (CDC). Studies undertaken by UNIDO in preparation for the Consultation have confirmed the findings of a previous UNIDO pilot project (para. 316) that:

- a number of developing countries have built up a stock of industrial skills which would be of value to other developing countries;
- the countries concerned are in general very willing to pass on these skills to other developing countries, both by sending specialists and in particular by receiving trainees. However, they lack financial resources to do so, especially foreign exchange;
- they also lack the administrative means to set up such a

programme in a systematic manner, the experience so far gained having been mainly by means of temporary expedients.

200. The studies therefore conclude that if co-operation among developing countries (CDC) of this kind is to become a reality, a mechanism will be needed in the receiving developing countries to accept training requests, and to set up and supervise training programmes.

201. Selection of the organization to become the "focal point": The studies indicate that there can be no uniform answer to the question "which agency could become such a national focal point in developing countries?" National circumstances vary so much that each country needs to be considered separately.

202. In Chapter VII Co-operation among Developing Countries, some qualifications are suggested (paras. 295-337) for an organization capable of arranging and supervising training programmes on behalf of other developing countries.

203. In relation to the second main purpose of the national focal point - co-ordination of co-operation with developed countries - the essential quality would be the ability to represent the private sector as well as the public sector. This implies a national organization such as the national or sector industry association. However it is likely that in some countries these organizations have not yet achieved sufficient national status to be effective, and one consultant failing to find any suitable organization already in existence, has proposed the establishment where necessary of a modest "Centre for Foreign Trainees from Developing

Countries" (CFTDC) at national level, together with three "Centres for Co-ordination of Industrial Training between Developing Countries" (CITDC), to co-ordinate CDC activities within each major region and between regions.

204. It would obviously be possible to expand the functions of the national CFTDCs (where they were needed in the absence of suitable existing organizations) to include bilateral co-operation arrangements with developed countries.

205. Proposed action: A diagram appears at Annex XI which illustrates ways in which "focal points" in developing and developed countries might operate. The left-hand side - relating to the official sector - already exists and does work in this way in many cases.

206. UNIDO's proposal covering both private and public sectors is now to look for suitable partners in a few developing countries willing to co-operate and to try out practical ways and means of putting some of these ideas into effect. As already pointed out some additional financial resources will be needed for this purpose, to supplement the support which the developing countries concerned may be ready to provide.

B. The organization of supply: the possible creation of co-ordinating mechanisms or focal points in developed countries

207. The success of the arrangements proposed in the previous section will depend to a large extent on whether corresponding focal points can be identified in the developed countries through which the training capacity

of their public and private sectors can be made available more easily to developing countries.

208. Some co-ordinating mechanisms or other institutions in developing countries might be expected in the course of time to acquire sufficient knowledge and experience of developed country conditions to be able to find their way around those training systems, this would, however, be to take a very optimistic view, given that many organizations and enterprises in the developed countries are themselves unfamiliar with the range of training activities and services which their countries offer.

209. The industrialized countries have adopted various approaches to training of industrial manpower; in the socialist countries, training constitutes an integral part of the planning process; in the countries with market economies, the situation depends on the importance of government involvement in economic development. However, it is generally accepted in industrialized countries that a minimum of co-ordination is required at the sectoral or national level in order to identify the most suitable training facilities available and to secure access thereto by developing countries.

210. Therefore the Consultation is asked to consider the possible creation of focal points in developed countries to facilitate the access by developing countries to the training capacity existing in developed countries.

211. The possible functions of such focal points are set out in paragraph 57 of the Issues Paper as follows:

(i) Information about potential suppliers of training services and their quantitative capacity. Such information should indicate the industrial sectors, levels of training, teaching methods, previous experience, etc. in which training of industrial manpower for developing countries is available.

(ii) Diagnosis of developing countries' training capacities and needs, to include a continuing assessment of technical and vocational training facilities, existing industrial training facilities, and the skills capacity of the manpower already available. Such information could be of particular value to small and medium-scale enterprises in developed countries.

(iii) Establishment of contact between buyers of training and the most appropriate suppliers, together with the co-ordination of suppliers where necessary. This would meet the demand from the developing countries which often requires co-ordinated activities of enterprises, training and financial institutions.

212. A first step in this direction has been taken in some developed countries through the preparation of an inventory or catalogue of the training capacity available for different sectors of industry, levels of skills, the teaching methods utilized etc. A second step might be the existence of some organizational structure at the sectoral or national level in order to establish the appropriate contacts with the private or the public sector within the developed country. However, this step would have to be taken with great care, since there is a multiplicity of suppliers of training: government departments responsible for

international co-operation, public and private training institutions, the education system, exporting enterprises etc.

213. The position in some of the countries concerned appears, on the basis of the studies carried out in preparation for this Consultation, to be as follows at the present time:

- Belgium: An organization with the capacity to perform all these functions already exists, and consideration is being given whether it should receive government support as a national focal point for all co-operation with developing countries in training of industrial manpower. An inventory of the training facilities existing in Belgium has been prepared.

- France: Although the position is complex progress is being made towards identifying a number of organizations which can be regarded as the main links between training systems and services in France and developing countries requiring such services. These organizations cover both private and public sectors of industry. Efforts have been made to prepare a qualitative inventory of the training facilities in France.

- Federal Republic of Germany: A national training organization, with central government support, is taking an increasing part in co-operation arrangements with developing countries - including the preparations for the present Consultation. Efforts are being made to prepare an inventory of training facilities available in the private and public sectors.

- Sweden: The initial official reaction is that in a market economy it is not possible for a central government organization to take a position

appearing to favour some enterprises at the expense of others. Accordingly, although the question has not received official consideration, it appears that for the present existing industry-to-industry direct arrangements will continue and will not be supported by any central government action.

- In the United Kingdom organizations exist which could in combination perform these functions but their activities would need to be co-ordinated.

- The Union of Soviet Socialist Republics and other centrally-planned economy countries: In these countries the centralized nature of the economic system offers ready-made focal points for training co-operation with developing countries.

- United States of America: No focal point exists at present and it would be difficult to find one with sufficient knowledge of the whole country. It might therefore be better to proceed on the basis of regional focal points and one such has already been identified.

214. In conclusion, because of the variety of situations in both developed and developing countries which will no doubt become increasingly complex in the future, the following question should be raised: to what extent would it be desirable to carry out a diagnosis of the supply available in developed countries from the viewpoint of the needs of developing countries by associating the latter to this diagnosis? In other words, the approach could be to simultaneously define the needs of developing countries and identify the training best suited to those needs. The general acceptance of such an approach in practice would permit the world market for training to become better informed as to the organization and content of both supply and demand.

ISSUE II. CO-OPERATION ARRANGEMENTS FOR THE ACQUISITION OF TECHNOLOGY IN INDUSTRY

V. THE POSSIBLE IMPROVEMENT OF CONTRACTUAL RELATIONS

(Paragraphs 68 and 69 of Issues Paper)

A. Introduction

215. The great majority of the cross flow of technology is between developed industrial countries. Recipient enterprises in developed countries normally have an established technological base and their objective in acquiring technology is to cover certain specific gaps in their technological knowledge. In comparison, the flow of technology to developing countries has been relatively limited but is increasing, amounting to perhaps 10 to 15 per cent of the world total.7/ For historical reasons, training has not been prominent in transfer of technology agreements - since most agreements are made between developed countries, both of which already have trained people.

216. Technology transfer agreements are one important channel by which mastery of the industrialization process may be achieved. A well planned training programme is the most effective means of ensuring speedy absorption of foreign technology. All agreements should therefore provide for the training of local personnel.

7/ "Guidelines for the organization of foreign technology in developing countries", UNIDO, 1973.

217. For similar historical reasons, and due to the much greater volume of technology flow between developed countries, the forms of technology transfer agreement have traditionally been sentially the same for agreements between developed and developing countries, as between developed countries. But for the developing country, however, the license agreement is not merely a document setting out the private interests and privately assumed risks of the parties to the contract; it must also serve a national interest, which makes training a basic essential of the agreement. As this has come to be more clearly realized, technology transfer agreements with developing countries have increasingly included training, but very often only as an addition or as an after-thought to the main agreement.

B. Technology transfer

218. The aim of a developing country is to control both the supplier of technology and also the technology itself. Control over the application of technology can be said to have two dimensions, "width" and "depth". Width of control, easier of the two to achieve, requires that the enterprise obtain technological capability over all the stages leading to the manufacture of a product. Depth of control, on the other hand, can be achieved only to a limited extent through contractual provisions. It involves the percolation of technical excellence (which is at the heart of all technology) to all relevant sections of a manufacturing enterprise or industry, and the emergence of competence in the use and application of technology.

219. Depth of control is fully achieved only at the end of a three stage process consisting of:

(i) First or access stage. The transfer of capability to a local enterprise is such that no technical direction from a non-enterprise source is required. Capability transfer can be said to have occurred even when expatriates (accountable to the enterprise) maintain technical direction;

(ii) Second or absorption stage. Full planned production performance is obtained and maintained under the technical direction of enterprise managers who are nationals;

(iii) Third or control stage. At this stage the national enterprise has the capability to use, diversify, propagate and develop information obtained from the outside source, and can be said to have achieved technological self-sufficiency.

220. Another way of describing the process is that during the first stage the emphasis is on setting up plants and facilities and learning to manufacture the given product, for which the collaborator supplies the complete manufacturing technology. In the second stage of technology absorption, the local firm learns to design new products or to carry out alterations in the product design supplied by the outside collaborator, but following design know-how and principles supplied by him. During the final stage of technology absorption, to total technological self-sufficiency, the local firm generates its own design know-how and principles, based on indigenous research and development. (There is an analogy here with the increasing levels of technological complexity, which are described elsewhere in the Background Paper.)

C. Types of technology transfer agreement

221. The planning and implementation of industrial projects involves the owner in contracts with consultants, suppliers of equipment, and civil works contractors. At least three combinations of contracts are possible:

(i) Separate contracts (e.g. between owner and consultant, owner and suppliers, owner and civil works contractor);

(ii) Joint contracts, where the consultants are linked with the equipment supplier or civil works contractor;

(iii) Comprehensive, or turnkey contracts where all the elements are tied together in one contract (i.e. between the owner and the consultant, supplier and civil works contractor acting together).

222. Most project contract agreements between developed and developing countries are one of four types:

(i) Turnkey lump sum;

(ii) Semi turnkey;

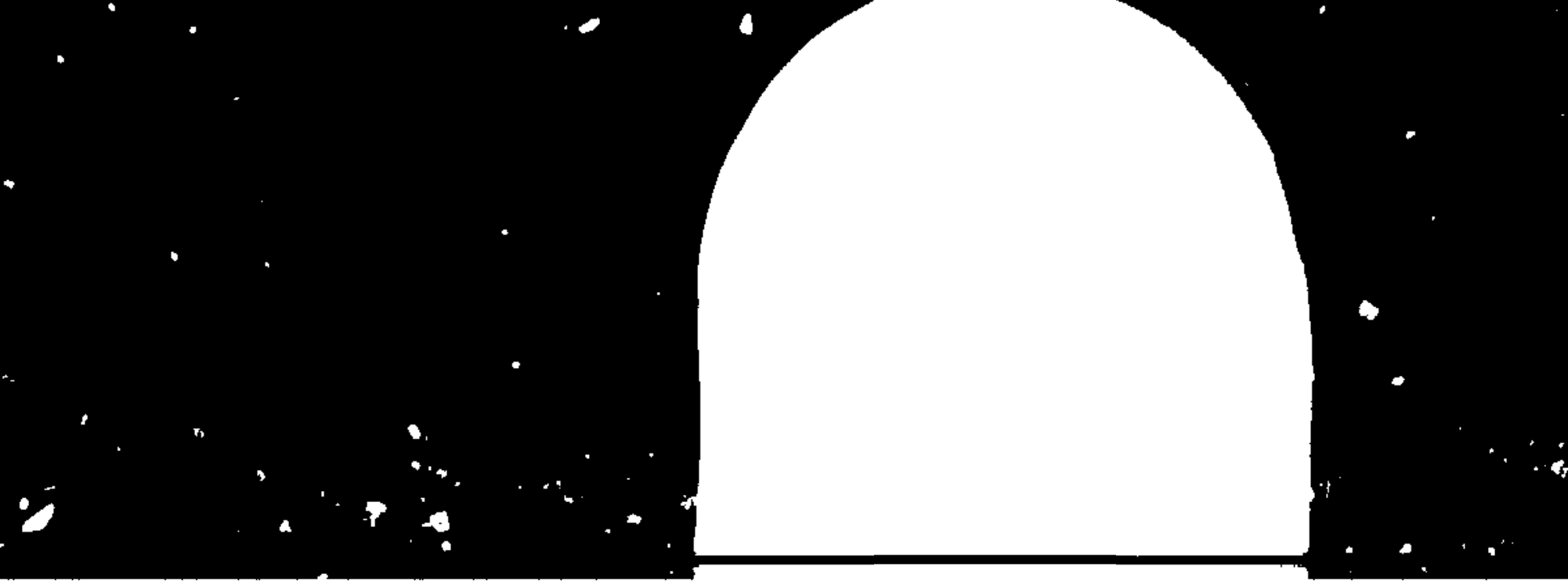
(iii) Cost reimbursable; and

(iv) Supply of know-how and engineering services.

223. Within these overall financing arrangements are up to six types of agreement which may either be separate or in various combinations. These six types are patents, know-how, trademarks, engineering services, technical assistance, and franchise. Training is significant in three of the six; namely know-how, engineering, and technical assistance.

224. The technical assistance agreement: The following are points concerning technical assistance agreements which are relevant to training:

- Training is one of the supplier's managerial inputs and may, for



example, include training the recipient's personnel in production management and the like.

- Some of the supplier's services are of short duration, others long term. Training services is one of the latter.
- For effective training, it may be preferable to go to an operating enterprise, that is, one that is using the equipment concerned rather than to the manufacturer.
- The normal approach to training of management of this type is that the supplier's personnel is employed in a limited period in key positions in a new plant, and while with the new enterprise has the duty of training local personnel to take over from it.
- It is important in this type of agreement, as in all technology transfer agreements, that there should be no "grant back" obligations - that is to say, information once purchased should have unimpeded use by the purchaser, just as if he had bought a diesel engine.
- The agreement should provide for the recipient's staff to have access to the supplier's manufacturing plant and head office. In this way, the staff of the new plant will be able to witness the working of various types of equipment, study the sequence of operations, and observe all the transformations that raw materials undergo to yield the product. By doing so, they also learn where problems may arise, and can see how those problems are dealt with by the supplier's experienced staff. The supplier too can benefit from this arrangement, since during this period he gets to know the staff of the recipient enterprise with whom he will be working for a considerable period, and can judge their strengths and weaknesses.
- The technical assistance agreement will provide for the supplier's

staff to remain with the recipient enterprise for some time, but it should be noted that this period should not be allowed to become indefinitely extended, since it is very important that the staff of the receiving enterprise should learn as soon as possible to stand on its own feet, technologically speaking. Technology is absorbed very slowly unless the local enterprise knows that the technology agreement has a relatively short duration. In countries where such agreements are renewed successively without much difficulty, the local enterprise comes to depend on its foreign partner for technical assistance which it could easily develop locally with a little effort. The foreign licensor usually welcomes renewal of agreements, because royalties will continue. Insistence on limited duration of technology license agreements should therefore be a concern of the national technology regulating authority.

225. The know-how agreement: For developing countries, by far the most important means of acquiring technology is the know-how agreement. Some know-how is tangible and can be reduced to data, drawings and graphs. However, there is also an intangible part - the composite of knowledge, organizational and operating skills (including special craft skills, for example) that are represented in human material - sometimes termed "show-how".

226. From the viewpoint of governments of developing countries, the know-how agreement should establish that there is a permanent transfer of know-how and related technical information to the licensee. As already emphasized, there should be no provision by which the receiving country is prevented from making further use of the knowledge gained under the

agreement. In addition, any secrecy obligations accepted by the licensee should not be of such a long duration as to make it difficult for employees of the licensee to absorb skills and to use these, should they leave the licensee's enterprise and go to work elsewhere in the country. Growth in a developing economy, where skills are short, is associated with mobility of personnel - those who at one location learn skills (such as designing or directing a plant) should therefore expect later to be employed by another enterprise at a different location, where they will be able to use the same skills.

227. The engineering services agreement: It is difficult to establish that the client has a right to training in engineering service contracts, although this is a normal part of agreements concerning know-how. Nevertheless, the effort should always be made, since work alongside a foreign contractor's staff is a most valuable training opportunity in any developing country, in particular for young engineers and technologists. Attention should therefore be paid to this point in negotiations, bearing in mind that it can be to the contractor's advantage also, specially when he wishes to continue operations in the same country. At the same time, it is important for the developing country's negotiating staff to appreciate that participation of their own relatively inexperienced nationals may cause the costs of the project to rise. This should be recognized and accepted for its training value.

228. Function of a national technology planning and regulating body: It is the philosophy of developing countries that transfer of technology is a matter which extends beyond the private interests of the licensee, and that it should also serve the public interest. In this way, incoming technology

should eventually spread geographically to create new centres of production and new entrepreneurs, while fostering skills able to lead to adaptation of technology, and ultimately to the development of new technology. Since agreements are legal documents and are executed between two parties (not involving the government of the developing country) primarily directed to achieving the purpose of the licensee enterprise, the national viewpoint can only find indirect expression. But the national technology planning and regulating body has important functions. Firstly it should guide the choice of technology by considering resource constraints, including:

- supply of technical skills at all necessary levels;
- adequacy of the national training infrastructure to obtain or create the necessary technical skills;
- the ability of the recipient to absorb the new technology.

229. It is particularly important that government planners should ensure that preliminary studies give full attention to the availability - or non-availability - of skills. The significance of this is that if training is not fully taken into account in the preliminary feasibility study it will be left out of the subsequent financial negotiations, causing the certainty of future difficulties when it is found (too late) that training is indispensable to the success of the project.

230. A further aim of the national technology regulating authority, as already described, should be constantly to involve national engineers and technologists in increasingly complex technology, so that they and the nation generally can gain experience leading ultimately to true technological self-sufficiency.

231. Finally, the overall aim of government policy should always be to secure permanent transfer of technology, and for this purpose to ensure that technology received by the country from outside should be free from restrictions as far as possible.

D. General considerations concerning all technology transfer agreements

232. While the importance of training for the success of any development project cannot be over-emphasized, it must be recognized that transfer of technology is not the sole objective of a development project, and that there are economic and business objectives which will be of greater importance in the minds of others concerned, namely the finance and business interests.

233. As regards the content of the agreements, it must be remembered that the basic principle throughout must be that a license agr ement has to codify a workable arrangement. It is a basic tenet of an engineering services agreement that "good faith" and "common objectives" are fundamental to it. The same applies to other technology transfer agreements which have a technical content and nature, including agreements for training. Good faith must be at the basis of such agreements, because it would be impossible - as well as bureaucratic - to attempt to legislate for every eventuality. This means that the parties must have a common understanding and acceptance of their joint objectives in broad terms. No satisfactory agreement can be built on suspicion, which in turn usually derives from inadequate knowledge of each others' situation, and this leads on to the final point of importance to negotiators from developing countries, namely the need for adequate preparation, in terms of background information and project data, so as to come to the negotiations as well informed as possible at every point.

E. Analysis of Technology Transfer contracts

234. Case studies referred to in the Issues Paper (paras. 6 and 72) show that contracts concluded under traditional arrangements are often defective in relation to training for developing countries, and that attention is needed particularly to the points set out in para. 72 of the Issues Paper, namely:

(i) The objective of the contract; definition of know-how and skills to be transferred; tasks to be performed as a result of training;

(ii) The definition of the training to be provided within the agreed cost;

(iii) Ownership of the training material, including its further use by the purchaser;

(iv) Elaboration of the training programme, including different levels of training, and the training of trainers; relative importance of theoretical and practical training etc.

(v) Determination of numbers to be trained, including provision for loss after training;

(vi) Recruitment of trainees, including methods of selection; definition of qualifications and other criteria for selection;

(vii) Arrangements for supervision during training, and for subsequent assessment of whether the transfer of skills and related know-how has effectively taken place.

F. Action proposed

235. UNCTAD is working towards a Code of Conduct on the Transfer of Technology. While Chapter 6 of the Draft Code entitled "Special Treatment for Developing Countries" is welcome, such is the importance of training to

the whole existence of technology transfer that it would appear very desirable to add a specific reference to training in the Principles in Chapter 2. All too often one reads in the evaluation report of a project "If only the lack of and need for trained personnel had been appreciated earlier, many of these problems need not have arisen". Whatever is possible to lessen such cases should be done. The Issues Paper points out that training is essentially a matter of anticipation - it takes time. If therefore an additional Principle could be added to those in Chapter 2 of the Draft Code it would help to draw attention to this fundamental fact which is all too often overlooked. The wording of such an additional Principle could be, for example:

- "All transfer of technology agreements for the benefit of developing countries should give special attention to the necessity for making adequate provision for the training of the acquiring parties' personnel, in good time, and at all levels of skill".

236. Action should be taken to improve both the content and the legal expression of technology transfer contracts with developing countries, both those in which training should form a subsidiary but nevertheless important part, and those in which training is itself the main subject. It should be recognized that contracts with developing countries need to take account of the inequality of technology between the two parties. They should therefore provide adequate training as a matter of course, and for the benefit of both parties the contracts should be drafted in greater detail, specifying exactly the agreed objectives of training and the means by which these are to be achieved.

237. Contracts of which training ought to form a part: During the past

five years UNIDO has negotiated model forms of contracts for construction of fertilizer plants, together with explanatory guidelines. Copies of the parts relating to training of the UNIDO Model Form of Contract and of the corresponding Guidelines are at Annex XII. These make very thorough provision for training, recognizing that without trained staff the plants are quite unable to operate, and the project cannot succeed. Similar model contracts and/or drafting guidelines are being prepared for the petrochemicals and pharmaceutical industries, and it is intended to extend the range progressively to other sectors of industry. In the case of the draft model form of agreement for the licensing of know-how in the petrochemical industry the following principles have been agreed upon as a basis for drafting in respect of manpower development:

"(i) Both the licensor and the licensee have a strong mu ual interest in the adequate training of the licensee's personnel;

(ii) The model contract should provide for a complete transfer of technological capability as opposed to a simple arms-length transfer of technology;

(iii) Engineers of the buying country should be involved in the design and basic engineering of petrochemical plants;

(iv) Training should be provided by the licensor for the required number of the licensee's operating personnel needed for efficient and safe operation of the plant, maintenance of health and safety standards, creation of suitable working and service conditions, and measures against pollution of the environment should also be emphasized;

(v) The licensee would pay the full costs of the services of the licensor's personnel used for the start-up and initial period of operation of the plant;

(vi) All additional arrangements for training of the licensee's staff should be the subject of a separate Annex".

238. Contracts principally for training: The models and guidelines described above will be related to training for the requirements and conditions of those particular industries, and there remains a need for guidance in the negotiation of contracts relating to industrial training generally, which can be applied to the needs of any industry.

239. It is suggested that the work already done provides an excellent example and starting point, and that corresponding work should now be undertaken on drafting a model and/or guidelines for contracts specifically for industrial training. This would include the elements incorporated in the existing models for specific industries, and add other points found from experience to be important in industrial training generally; in particular, emphasis should be placed on the training of trainers, to perpetuate the knowledge gained and ensure that the new technology can take root and grow. Proposals have been made in the study of the legal aspects of industrial training contracts referred to in the Issues Paper (para. 73), 8/ concerning some of the main elements which need to be included in industrial training contracts, and these proposals are summarized in Annex XIII .

8/ M. Salem: "Legal aspects of industrial training", UNIDO, 1981.

G. Verification of training

240. The case studies referred to in the Issues Paper (paras. 6 and 72) indicate there is also a need for special attention to another aspect of training contracts, namely verification of whether the transfer of skills and related know-how has actually taken place. All responsible trainers wish to ensure that their work is achieving its intended results, and objective assessment is equally in the interests of both the receiver and the supplier of training. To the seller of training services verification is important, because it serves to protect his reputation, assists him to plan and improve future training, and avoids misconceptions as to what training can and cannot do.

241. The practical way of achieving this joint verification of results requires thought. The legal study comments that the present situation, where the supplier frequently assesses results on his own, is not wholly objective since it can become a case of the supplier being both judge and a party to the contract. Equally, if the recipient of training alone judges the results, this is not objective either for the same reason, and if the training were to be judged inadequate in these circumstances, the result would not be accepted by the supplier. For these reasons, it would be highly desirable to work towards a position where it would be considered normal to have a joint assessment by both parties, together with the participation of an impartial outsider, and it is suggested that this situation offers an excellent opportunity to involve the national training authority of the country in question, which would derive the following advantages:

- Help to resolve possible differences of opinion between the recipient and the supplier of training;

- Gain knowledge of local training circumstances;
- Assert its position as a national authority; and,

very importantly,

- Gain knowledge and experience from association with an experienced supplier of training from another country.

242. This approach would also avoid the potential problem of the cost of introducing a third party to take part in the assessment of results, since the national training authority would bear the cost of its own participation.

Training for national technol gy transfer staff

243. A further possible way for UNIDO to help to raise the level of consideration devoted to industrial training in the negotiation of contracts would be to arrange training seminars, for example on a regional basis, to give guidance to national staff involved in technology transfer. These seminars would deal both with training as part of wider contracts - i.e. for major projects - and also where training is itself the main subject of agreement, as described above.

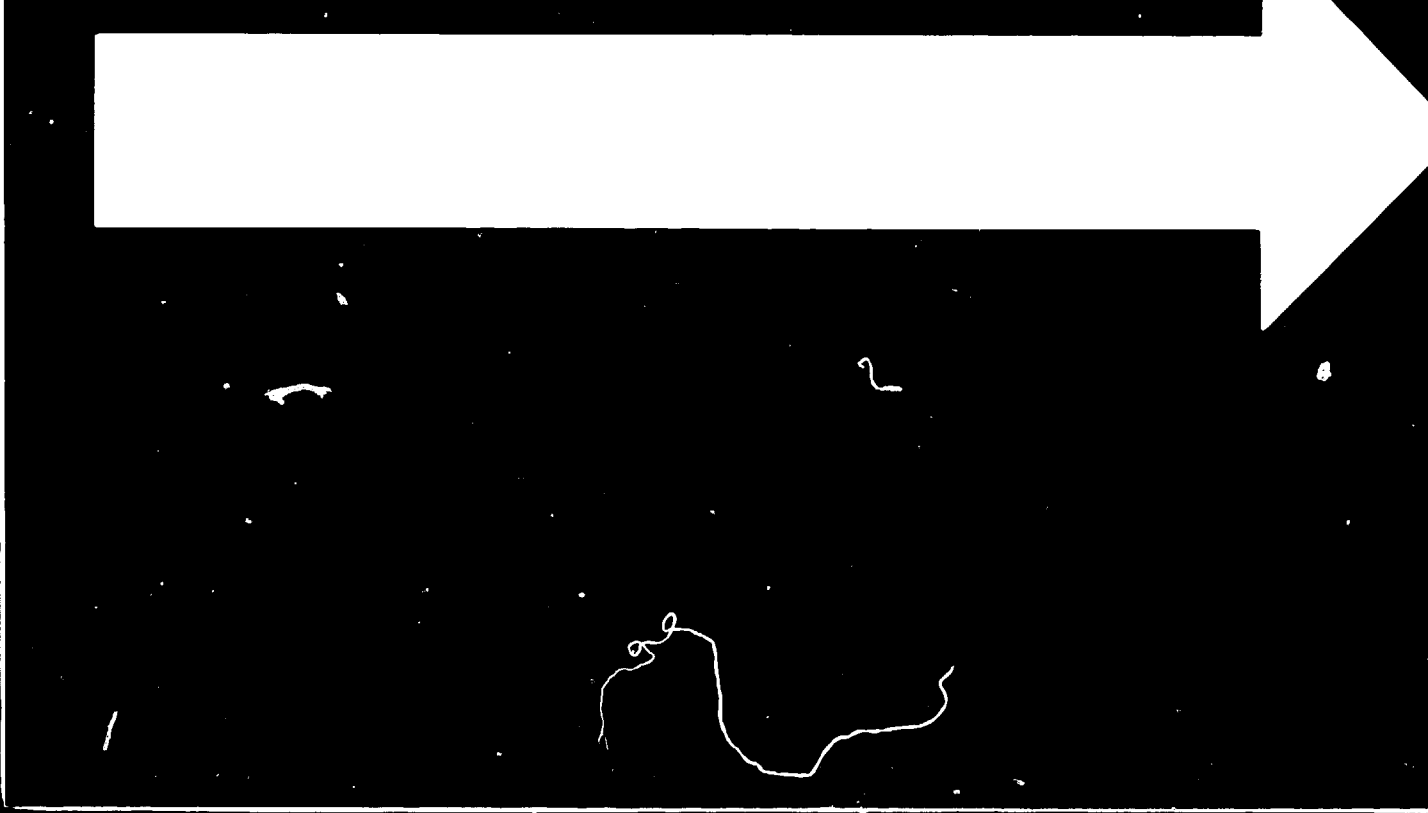
VI. THE FINANCING OF CO-OPERATION IN THE FIELD OF TRAINING FOR INDUSTRY (Paragraphs 74 - 77 of the Issues Paper).

A. Introduction

244. The Issues Paper refers (para. 74) to a "vicious circle" which must be broken. The vicious circle is this. A project in a developing country is to be financed. The financial institution which is considering the investment investigates during the course of its appraisal whether there will be sufficient trained manpower to operate the project when completed. The answer is that the project will be located in a remote area as part of a new development program. There are suitable people ready to be trained but trained personnel do not yet exist. It is then quite frequently found that the financing institution regrets that it is unable to consider financing the project because it will not be viable in the absence of trained staff. The developing country's negotiators ask for the cost of training to be included in the financing package. The answer this time is that the institution is unable to lend money for training - because it is too uncertain an investment to be viable. This is the vicious circle, and only the financing institutions themselves can break it, by a change in their traditionally doubtful attitude to training as a subject for investment.

245. There are in fact good financial reasons why this traditional antipathy to investments in training should change in the course of time.

246. As the Issues Paper says in para. 51 investment in training is a positive investment with good financial returns.



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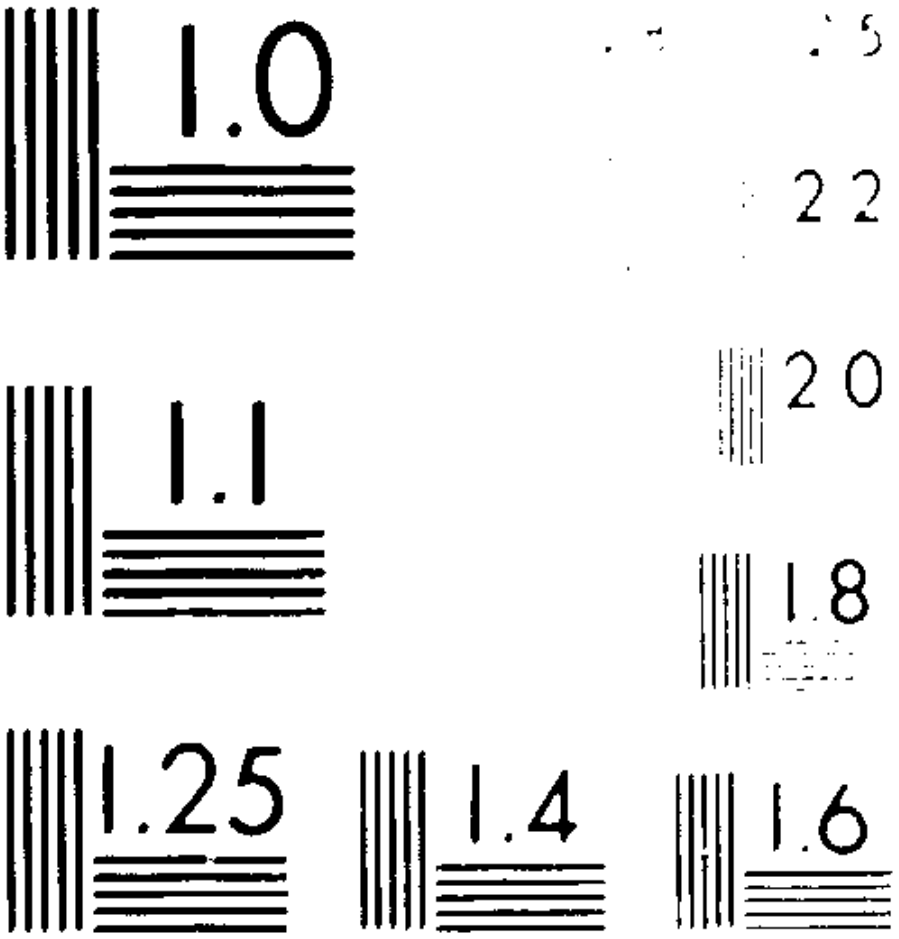
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become the supervisors, managers, technologists and leaders, higher education in polytechnics and universities.

251. The framework and guidelines for this essential technical and vocational education foundation of training have been prepared by UNESCO and by the ILO, culminating in the major policy statements which will be made available in the conference room. The physical facilities needed by technical and vocational education - well equipped schools and workshops supported by teacher training facilities, especially the training of technical teachers, have been and are still being financed on a generous scale by national and international development banks, especially the World Bank through IDA. UNIDO and the ILO have assisted many countries to develop training institutions and schemes. This is an opportunity to express appreciation for their major long-term efforts for the development of education, without which no industrial development would be possible.

252. Many World Bank loans over the last 20 years have been made for the development of national education systems, and they have almost always included provision, sometimes the major part of the total, for technical and vocational education. The funds are usually provided as integral parts of loans for sector development plans - especially the development of the educational and industrial sectors. In recent years training of industrial manpower (as opposed to education) has sometimes formed the major part of a credit or loan, and in a few instances the whole of the credit has been for the development of a new training infrastructure. This trend reflects growing recognition by the financial institutions that without an industrial infrastructure which can handle large investment inputs and turn them into physical form loans for development purposes will be

ineffective. Thus the development of the industrial and technological base has become an investment objective in its own right - as a necessary pre-requisite to investments for other purposes.

253. World Bank policy is expressed in Sector Policy Papers, and the current one for the Education Sector was issued in April 1980. In view of its importance extracts are reproduced in Annex XIV.

C. Training as an element of financing industrial development projects

254. Paragraph 75 of the Issues Paper makes the point that when investment in training is included in an industrial development project financed under commercial arrangements then provision should also be included for necessary preliminary exploratory studies. There are good precedents for this, for example in the World Bank's practice of "retro-active financing" for preliminary project investigation work. Under this system when the project is agreed following investigation the cost of the investigation is included in the loan credit.

255. It should also be noted in this connection that just as important as proper preparatory studies is effective follow-up. To train only the minimum operating team for a project is not enough. In the course of time - sometimes quite quickly - key members of the team will move away, and it will be otherwise depleted. When this happens there is a serious risk that the project could cease to function unless provision has been made for training replacements, and the investment will have failed. To avoid such situations provision should always be made, as it should be for preparatory studies, for training the client's own trainers in order to continue and multiply the training given by the contractor, and enable the further

development of the project. It may be that the client does not have any trainers. In that case provision should be included for some of his staff to be trained as trainers. For example it will almost always be a good idea to include in training programmes for foremen a short training course in the techniques of on-the-job instruction since when the project opens the foremen will not only be technical supervisors but also trainers of the new operating staff who join the project.

256. Therefore in contracts for supply of capital equipment provision for training of trainers should always be included, and it should also be considered in contracts for training services alone, if it does not already form part of the contract package. It is unfortunately quite frequently found in financial negotiations for projects that training is regarded as dispensable. When negotiations get tight training is jettisoned and those who have to save the project from the resulting problems are told "Sorry, but there was no money left for training". Even when money is not short it is of the essence in commercial investment situations that only the minimum training will be done. Yet common sense may show that what the client needs is something which will enable him to go on building in the future - that is to say a wider and deeper approach to the training need than merely to produce a limited team of operators for the immediate purpose. In such a situation the use of aid funds from official sources, as the Issues Paper says (para. 77), is a good way out of the problem. When a combination of public official aid and private investment is used to pay for the training component of a commercial development project the use of aid can be highly beneficial, since it can support objectives wider than the immediate commercial purpose of the project. Thus it may be possible to provide for the training needs of a whole development region, rather than merely of a

limited project. Such an objective may be equally acceptable to the project managers, but they are unable on their own to adopt it since their mandate is to set up a financially viable project, and there is no surplus left for paying for even desirable additions.

D. Financial terms of investment in training

257. At present it is sometimes found that when training forms an element of an investment project the financial terms relating to the training component are less favourable than those for the remainder of the project. It has been argued above that training should always be considered a priority purpose for investment in a developing country. At the very least it should therefore receive the same preferential terms as the capital investment to which the training relates - certainly not worse terms as is now sometimes found to be the case. Training is an essential part of such investments, not an optional extra. A study 9/ follows about present practices in this respect: i.e. the way in which leading exporting nations' financial institutions are currently treating investment in training in industrial projects - whether they see it as an important commodity worthy to be financed on the same terms as the actual goods themselves - and the study concludes by making a number of practical recommendations.

9/ Joan Pearce: "Policies of export credit agencies in financing of training component in industrial projects", UNIDO/PC.54, 1982

E. Policies of export credit agencies in financing of training component in industrial projects

258. Each country's export credit agency has at its disposal a range of instruments for supporting export credit. Official support is chiefly confined to medium- and long-term credit, which is used to finance exports of capital goods. These tend to be large, complex, one-off orders. Consequently, the provision of official export credit is often determined in the context of an individual transaction, on the basis of a number of policy considerations and the priority accorded to them. This is equally true of export credit for the training component in industrial projects. Exporting countries have not consciously devised policies in this area. In so far as training is distinguished at all from other components, its treatment reflects the importance assigned to it in relation to various policy objectives.

259. In the absence of explicit policies, this study tries to explain the factors which influence the way export credit for training components is dealt with.

Official export credit facilities

260. Initially official support was given to export credit to prevent export orders being lost through lack of finance. Governemnts began to guarantee credits against types of risk, such as insol cy, which commercial insurers would normally cover but declined if they regarded the business as too hazardous, too large or too long; and against types of risk not normally covered by commercial insurers, such as transfer risk.

261. Changes in the international economy during the 1950s brought about changes in the demand for export credit. New markets were opening up in developing countries which, because they were short of capital and foreign exchange, relied heavily on export credit but also entailed greater uncertainty. Capital goods were becoming larger and accounting for a higher proportion of trade and since they were usually sold on credit this implied more and longer credit.

262. The banks were reluctant to take on additional risks and so official support increased. Governments expanded their insurance activities and became more directly involved in the provision of export finance. In some countries an official export bank made direct loans while in others the central bank refinanced export credit advanced by commercial banks. In response to importers' growing aversion to fluctuating rates countries arranged for their commercial banks to offer a fixed interest rate for export credit. Fixed interest rates were intended to remove uncertainty but not to reduce the cost of credit. During the 1970s, however, market rates of interest in some countries (notably Britain and France) rose steadily while their fixed rate was adjusted very little, with the result that their governments were substantially subsidizing the fixed rate.

263. The 1970s witnessed a general deterioration in the economic environment: high rates of inflation, volatile exchange rates and slack demand. At the same time exports of capital goods became larger and more complex. To ease some of the difficulties export credit agencies introduced new facilities, including cover for performance and other bonds, support for pre-shipment finance, exchange risk guarantees and cost-escalation schemes, which partly protect firms against inflation when they are exporting large capital goods with long manufacturing periods.

264. Since the 1950s the financing terms have become an important element in competition for exports of capital goods. Official export credit agencies, besides ensuring that finance was available for these exports, began to match the terms being offered by their opposite numbers in other countries. Although their original function was to remove impediments to exports, export credit facilities have increasingly been used to win export orders from competitors.

The supply and demand for training of industrial manpower

265. For many years exporters of capital goods saw their responsibility as ending with the delivery of a machine in proper working order. They would furnish the basic instruction needed to operate the machine as well as perhaps some after-sale service, but they did not reckon to see that the people manning the machine would be able to keep it running efficiently. As capital goods have become larger and more complex and as exports of whole projects (plants and factories), rather than individual items, have become more common, training has assumed more importance.

266. This development has been reinforced by the tougher competition among exporters that has resulted from the recession in the world economy. Training is now regarded by some as another element in an export deal which can be used to attract a customer away from a competitor. Furthermore, exporters appreciate that to supply plant or equipment which becomes inoperative within a short time does nothing to enhace their reputation so that it is in their interest to provide sufficient training to ensure that their exports perform satisfactorily. They are also aware that training familiarizes the recipients with their products and thus can help to obtain further business in the future.

267. Importing countries anxious to improve their industrial production have become aware, in general, that training, and notably on-the-job training, is essential to acquiring technology and, in particular, that imports of capital goods have sometimes failed to confer the expected benefits because of inadequate training. Hence the governments of some developing countries now seek from exporters training in the technical skills and know-how necessary to operate and maintain machinery and also in the managerial and commercial abilities needed to ensure that a production process runs smoothly and profitably.

268. Some years ago the "turnkey" concept began to be adopted. This meant that a firm undertook to deliver plant and equipment to the importer ready to go into production, which entailed not only exporting goods but also seeing that they were properly installed. More recently there has been further evolution with "product-in-hand" projects, in which the exporter remains involved until output is being produced. In some cases the exporter is directily responsible for the entire project, in others the later stages may be sub-contracted to a consulting engineer or there may be a completely separate contract. On occasion aid agencies participate, providing financial or technical assistance.

The cost of export credit

269. All the OECD countries except Iceland and Turkey offer some measure of official support, and so do some non-OECD countries (including Argentina, Hong Kong, India, Iran, Israel, Republic of Korea, Pakistan and South Africa. Some 85 per cent of the export credit supported by OECD countries comes from five countries: France, the Federal Republic of Germany, Japan, the United

Kingdom and the United States; and some 70 per cent is for export to developing countries.

270. Official support for export credit comprises several instruments. Exporting countries have somewhat different arrangements for each of these instruments and offer them in various combinations. At the least, the export credit agency provides an official guarantee for a commercial loan. In addition it may permit an export credit to be advanced at a lower rate of interest or for a longer term than would be available for a commercial loan. This the export credit agency can do by making a direct loan, refinancing a commercial loan or subsidizing the interest rate on a commercial loan. Financing of local costs associated with an export, such as the costs of installing a factory, may also be subsidized. Some countries provide mixed credit, in which export credit is supplemented by aid funds (either a grant or a cheap loan). The aid funds are used to cover the down payment or local costs, to lower the rate of interest or draw out the maturity still further, or to insert a grace period before the repayments have to begin. Other facilities which are sometimes subsidized include insurance premiums, pre-shipment finance, cost-escalation insurance and foreign-exchange guarantees.

271. Export credit agencies work closely with the commercial banks which arrange export credit on behalf of the exporter, or in some cases the importer. Given governments' readiness to guarantee export credit and often to refinance it, so satisfying banks' concerns about security or liquidity, the banks regard export credit as high-quality business. Not only is it virtually risk-free, but once an agreement is completed it generates very few costs. Banks can also benefit from associated business, such as foreign exchange transactions and commercial loans to cover the

down payment or local costs. In recent years, however, increased competition for export credit business has tended to depress the fees banks received from borrowers for negotiating and managing contracts.

272. There are two main aspects of official support for export credit: guarantees and finance. In some countries these are handled by a single organization and in others by separate organizations. In any event, while export credit policy is administered through these agencies it is formulated in consultation with several government departments. These typically include the ministries of finance, trade industry, employment, foreigh affairs and development, as well as the central bank. They are involved in decisions both on individual export credits and on general policy, such as the introduction of a new facility.

273. The basic decision is whether to guarantee a particular piece of business. Although export credit agencies take on business that would not be acceptable to commercial insurers, they are generally expected not to make a loss on their activities, which means that they cannot take on unusually risky business. In the case of countries which provide subsidized finance, the granting of a government guarantee automatically gives the borrower access to official finance. Most export credit agencies retain some discretion however as to the extent of the subsidy. They normally provide finance on terms less favourable than those allowed by international agreement. This gives them the possibility of improving on the norm in certain cases, by offering to finance a larger proportion of an export credit, to lower the interest rate or to extend the maturity. In exceptional circumstances an export credit agency may decide to exceed the agreed limits. Official financing imposes a direct cost on public

expenditure and may impose indirect cost if it distorts the financial market.

274. In reaching a decision as to whether to guarantee an export credit or how much subsidy to provide, those responsible are setting the cost of assuming the risk or providing the subsidy against the economic and other benefits that the export is expected to confer. The predominant policy considerations are usually the balance of payments and employment. Contracts that are thought likely to lead to further export orders or to generate employment in the exporting country are favourably regarded. Sectoral arguments also play a part. Some branches of the capital goods industry are particularly dependent on exports because their most efficient scale of production exceeds the requirements of the domestic market. Some branches are active in the development of new technology, which benefits the rest of the economy but may be difficult to establish in export markets.

275. Although the main considerations relate to the impact of an export on the economy of the exporting country, some account may be taken of the effect on the importing country if it is a developing country. This aspect may be given more weight in the case of a mixed credit. Attention is also paid to foreign policy. The principal recipients of official export credit are governments, state entities or development banks so that it is often akin to government-to-government loans.

276. Differences among exporting countries in the ways they organize and appraise official export credit mean that an importer may be offered a diversity of financial terms for a transaction. The proportion of official finance, insurance premium, length of the credit, interest rate and fees

can all vary. In addition, there may be official support for local costs and an aid element may be included. To complicate matters further, the offers are usually in different currencies. The borrower needs to calculate not only the current cost of a credit, but to make a judgement of how exchange rates will move during the period of repayment. A lower interest rate can be more than offset by currency appreciation.

The international framework

277. During the 1970s official export credit was seen by exporting countries as being increasingly wasteful. The growing subsidy was imposing a greater burden on public expenditure, while international demand for capital goods had slackened. The purpose of the subsidy was to promote exports. This meant either increasing total world exports, which was difficult in the prevailing economic climate, or increasing a country's share of the existing market. It was evident that if one country's subsidy was matched by a subsidy from another, they each lost the cost of their respective subsidy but gained nothing because their relative competitive position was unchanged.

278. In 1974 a gentlemen's agreement on minimal rules for official export credit was signed by the five major exporting countries, Italy and Canada. This was superseded in 1976 by a more comprehensive international consensus, which was in turn replaced by an international arrangement in 1978. The Arrangement was essentially the same as the Consensus, but more formal, more extensive and more stringent. Recently it has been substantially revised.

279. The Arrangement on Guidelines for Officially Supported Export Credits

was signed by all the 22 OECD countries which had facilities for financing or guaranteeing export credit. It set guidelines establishing minimum down payments, maximum repayment periods and minimum interest rates, which varied according to the length of the credit and whether the country of the borrower was classified as relatively rich, relatively poor or intermediate. Participants undertook either to observe the guidelines or to notify other participants that they intended not to.

280. Within six months of the Arrangement coming into effect market interest rates in all the major trading countries began to rise steadily. The amount of subsidy implied by the minimum rates fixed in the Arrangement rose commensurately. The United States was particularly concerned at the increased subsidy and pressed for an increase in the minimum rates. A small increase was implemented in July 1980 and a larger one in November 1981. These only partly closed the gap that had opened up between the minimum rates and prevailing market rates so the subsidy remained larger than when the Arrangement had been introduced.

281. One substantial change that has been agreed is the establishment of a buffer zone between export credit and mixed credit. Previously there was a continuum of different types of finance ranging from commercial loans through export credit, mixed credit and aid to grants. In future mixed credit with a grant element below 20 per cent will not be permitted. (The grant element measures the extent to which a loan is more concessionary than a commercial loan.) Since the grant element of export credit is very much less than 20 per cent this change means there is now a clear break between export credit and mixed credit. The possibility of using mixed credit as a

slightly more generous version of export credit will no longer exist; mixed credit will be confined to being an ungenerous form of aid.

282. Also important is the revision of the prior commitments clause in the Arrangement. This permitted lines of credit agreed before July 1976 to continue to be offered on the same terms until they lapsed. Following each of the subsequent increases in minimum rates existing lines of credit were allowed to continue unchanged. The Arrangement has now been altered, however, so that the terms of prior commitments can apply for only six months after a change in the minimum rates. The overall discipline of the Arrangement has also been made tighter. Whereas before participants were allowed to step outside the guidelines provided they notified other participants and gave them a chance to do likewise, now departures from the guidelines are ruled out altogether.

Prospects

283. The case studies undertaken by UNIDO 10/ show how exporting countries are keen to promote exports of capital goods. To this end they provide substantial official support for export credit which enables exporters to offer their customers more financing on more favourable terms than would be possible if they had to depend entirely on the commercial banks. In broad terms support can be divided into official guarantees,

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10/ J. Pearce: "Policies of national export credit agencies in financing of training component in industrial projects", UNIDO /PC.54, 1982

entailing a potential cost which varies according to how risky the business is, and official financing, which imposes an actual cost on public expenditure. In determining whether and on what terms to offer export credit for a particular transaction the authorities in the exporting countries weigh these costs against the, chiefly economic, benefits which they expect to derive and the amount of support that competitors are likely to offer.

284. For some years training was regarded as an optional extra in exports of capital goods, something which could serve as an additional inducement to purchase a product rather than a vital factor in its successful performance. As capital goods exports became larger and more complex, as developing countries became more aware that they would not function satisfactorily unless they were operated by people with adequate training, and as exporters realized that by supplying training they could secure their reputation, improve their competitive position and pave the way for furher orders, more attention was focused on associating industrial manpower training with exports of capital goods. The experience of aid agencies showed that vocational training which they provided sometimes did not match the needs of developing countries, and that projects which they supported sometimes miscarried through lack of appropriate training.

285. The increased importance of training in exports of capital goods has required export credit agencies to give some consideration to the financing of training. In the majority of cases training is one component in a project financed by a single package, of which training may account for about 10 per cent. Wher training is financed independently it is sometimes treated differently from the goods to which it relates. Some export credit

agencies are less willing to finance training or offer financing on less favourable terms. Occasionally financing for training is made available from aid funds and so is cheaper than normal export credit.

286. There is little evidence of clearly defined policies towards official financing of training, apart form a few instances of specific limitations, such as those set by COFACE for the repayment period. Like export credit policy as a whole, the question of how to treat financing of training crops up from time to time in various contexts. Whereas policy on the basic issues of export credit has had a numer of years to develop so that there are certain habits and precedents to guide decisions, financing of training is a relatively new area in which those responsible for export credit policy are less experienced. Furthermore, separate training contracts occur most frequently in connection with larger projects, which tend to be considered case by case. In the absence of specific procedures export credit authorities apply to financing of training the same criteria as for finacing of goods, chiefly the risk of non-payment, the returns to the economy and the terms being offered by competing exporters. By these criteria the case for treating training favourably may be doubtful: training is regarded as comparatively risky because the scope for disp[illegible] is greater and recourse in the event of non-payment is more limited; [illegible]- tributes little to domestic employment, a major objective of export credit policy; and, unless there is a particular incentive, the general tendency to approach financing for training cautiously dampens competition among export credit agencies in this field. With regard to partly financing an export out of aid funds, for example in a mixed credit, on the grounds that it will contribute to the importing country's economy, the justification is usually stronger for training than for goods alone.

287. This appraisal of the determinants of policy towards the financing of training in capital goods exports suggests that developing countries could adopt three lines of approach in seeking to improve the terms on which they obtain this financing. First, they can try to turn the existing system more to their advantage; second, they can press for an increased amount of aid funds to be used; and third, they can endeavour to bring about a change in the attitude of export credit agencies. The emphasis of these efforts will vary according to which developing countries are dealing with which exporting countries. The previous section of this study indicated the differences among exporting countries in providing financing for training. The main factor affecting the position of developing countries as recipients of this financing is their market power. Countries which are large purchasers of capital goods and are considered reasonably creditworthy are much better placed to extract more favourable terms from export credit agencies than are countries which generate very few orders and have a credit rating so low that they are effectively barred from international financial markets. These countries may have more to gain from appealing to aid agencies.

288. As a first step towards strengthening their position developing countries should be better equipped than at present to assemble and evaluate information about training and financing. In this they will need assistance which could be provided by national aid agencies but since it involves comparing what is available in different countries it might more appropriately be a role for international institutions. Some newly industrializing countries have begun directly approaching consultant engineers and commercial banks. Although the advice of these enterprises may be more costly, they have much relevant experience and are able to

operate internationally. To the extent that the price of an export covers the fees paid by the exporter, the buyer is already paying for the services of consultants and banks. If the bank handling an export credit were nominated by the buyer rather than by the exporter the overall cost to the buyer would probably be no greater and the buyer would have direct access to the bank's expertise (see below). A clearer understanding of training and financing would permit developing countries to reap greater benefit from what is available. They would also be able to express their requirements more precisely, which would reinforce their bargaining position and reduce uncertainty.

289. To use more aid funds in the financing of training associated with capital goods exports may appear an obvious and satisfactory solution but it has several drawbacks. Countries allot only a limited sum of money to their aid budgets. When an exporting country provides aid funds to finance an export of training, the amount of aid for other purposes is lowered. Past experience with mixed credit shows that when aid is used as an instrument of export promotion it tends to be directed to those countries which represent the most attractive markets and where competition is toughest. Developing countries ought to consider how far it is in their interest that industrial manpower training should be financed from aid funds. It imposes constraints, bureaucratic procedures have to be followed and if the results of training are unsatisfactory a developing country has little recourse. Furthermore, the less training is regarded as a commercial activity, the less competitively it is likely to be supplied, and the less inclined export credit agencies will be to treat it on a par with other exports.

290. It is important to recognize the distinction between aid policy and export credit policy. Official export credit appears as aid in some statistical series and is seen by a few exporting countries, notably France, as a channel for development assistance. In practice it effects a transfer from a developed to a developing country, and, unlike commercial credit, its terms are more favourable for poorer countries though they are higher credit risks. Nonetheless, whereas aid policy is directed, albeit imperfectly, to the needs of developing ountries, export credit policy aims to advance the interest of the exporting country by promoting its exports. Buyers' interests are given a low priority and the policy changes which occur are usually a response to pressure from exporters. Developing countries should as they have in the past, exert influence through exporters to bring about adjustments to policy which they consider desirable but they should also make their increasing market power felt more directly.

291. Export credit agencies are by nature conservative and sometimes operate by rules of thumb which were established under different circumstances from those prevailing today. Early on their function was to support credit advanced by an exporter (supplier credit). Many still prefer to deal solely with the exporter and a bank nominated by him though, especially in the case of long-term credit, much export credit is now advanced by a bank directly to the buyer (buyer credit). A developing country should when appropriate insist that an export credit agency accept the bank which it nominates. This would help to ensure that finance was arranged in a way that suited the buyer and would give the buyer access to the sort of advice discussed above. It would also make export credit agencies more responsive to the interests of developing countries in

setting their policy priorities. While buyers would benefit generally from being directly represented in negotiations with export credit agencies by an international bank with relevant expertise, this would be of particular value in difficult and unfamiliar types of credit such as financing of training.

292. As well as using the leverage at their disposal to persuade export credit authorities to take more account of their concerns, importing countries should take action to alleviate the apprehensions which contribute to the guarded attitude of these authorities towards financing of training. The relatively high risk attributed to training derives in part from the fact that historically training was included in capital goods exports almost as an afterthought and still is often only summarily covered in contracts. Particular difficulties have arisen from performance bonds which some developing countries are thought to have abused by setting unreasonable standards for the results of training. To avoid problems the training clauses of contracts should be drafted in greater detail, specifying precisely what the supplier is to accomplish and providing for resort to arbitration if this becomes the subject of dispute. A clearer appreciation of what training involves, advocated above, would also help.

293. Another reservation that export credit agencies have about training is that it generates very little employment in the domestic economy. Training can, however, help secure export orders which do generate employment. It also has a high added value and earns foreign exchange. Most important at a time when world trade is in a serious recession, training is a product for which demand is growing. Developing countries and the firms that supply training should endeavour to convince export credit agencies that

financing of training is an area in which they can assist in creating new business, rather than merely winning orders from competitors, and so carry out the function for which they were originally intended.

F. Summary and recommendations

294.The fact that exporters' interest in providing training is commercial while importers also have a development objective presents various problems:

(i) Importers are anxious not simply that exporters should fulfil contractual obligations to train personnel but that the results, in terms of the capacities of these personnel, should be satisfactory.

- In exploring ways of improving the outcome of training importers have considered, among other devices, buy-back arrangements and performance bonds. Buy-back arrangements, whereby the exporter of a factory undertakes to buy back all or part of the output to sell in his own or third markets, are generally disliked by exporters because they are costly and require them to engage in activity beyond their usual scope. Performance bonds, which are redeemed only on satisfactory completion of a project, exacerbate the fourth problem listed below because they increase the risk of non-payment and so make export credit agencies more chary about guaranteeing credit for training.

- Historically training was included in capital goods exports almost as an afterthought. Exporters were reluctant to become involved in training and tended to treat it as an inducement they could use to secure an export. Two effects of this were that training was only summarily covered in contracts and that exporters minimized the cost of training to the

purchaser. Consequently, importers have expected to extract more from the training element of contracts without paying commensurately more for it. To avoid this difficulty the training clauses of contracts should be drafted in greater detail, specifying precisely what the supplier is to accomplish and providing for recourse to arbitration if this becomes the subject of dispute. In addition, training should be priced more realistically. There are companies in the developed countries specialized in providing training which have the capacity to fulfil the requirements of the developing countries and they will do so if it is commercially worthwhile for them. More precise contracts and more realistic prices would help to ensure that developing countries get what they wanted and to ease financing problems.

(ii) The training supplied by an exporter is specific to the piece of equipment or project which he is selling whereas the importer may require deeper and broader training.

- More realistic prices would also alleviate this second problem - deepening and broadening the training associated with a specific export project. Alternatively to seeking commercial finance developing countries can approach aid institutions to supply training to supplement an export project. It is sometimes suggested that aid agencies are not well adapted to organizing practical training. Aid institutions, however, are becoming more aware of the importance of such training and as a result of becoming more exigent regarding both the quantity and the quality of the training included in their own projects. A more serious difficulty with this procedure is that the training programme may be devised at a relatively late stage whereas the earlier training is taken into account the more

beneficial it is likely to be. Both aid institutions and exporters in developed countries resist for the most part the idea of direct collaboration on export projects, but experience nevertheless shows that such collaboration can work to the benefit of both parties, and of the recipient developing country.

(iii) Training incorporated in capital goods exports is financed with export credit which is more expensive than the aid funds that are drawn on for official technical assistance programmes.

- With regard to this third problem, it is important to recognize that although export credit effects a transfer from a developed to a developing country the purpose is to promote exports. Consequently the criteria for offering export credit relate to its implications for the balance of payments, level of employment or foreign policy interests of the developed country rather than its impact on the economy of the developing country. Several countries offer mixed credit, in which aid funds are mixed with export credit to give softer terms than export credit alone. Some of them supposedly confine mixed credit to projects with a developmental aspect but this stipulation is loosely applied.

- Given the objective of export credit, the official agencies which support it are more likely to respond to pressure from their own exporters than from any other source. From an importer's point of view much depends on his bargaining power as a consumer. The more vital an export is considered to be by an exporter or his government the more likely an importer is to obtain favourable treatment in the provision of export credit facilities. Nonetheless there are limits. As the Export Credit

Guarantees Department, United Kingdom - (ECGD) - has explained, "This simply reflects the fact that beyond a certain point the economic benefit of an export to the exporting country disappears". Furthermore, there are countervailing pressures. Concern to reduce both the public expenditure costs and the trade distortions that arise from subsidized export credit has led to sustained efforts to lower the amount of subsidy permitted by the OECD Arrangement on Export Credit. Nor will importers gain in the long run if the subsidizing of export credit results in the more competitive producers being squeezed out of a market.

(iv) Where a distinction is made between the goods and the training in an export deal the export credit terms offered for training are sometimes less favourable.

- This last problem, of training being financed less favourably than goods, derives partly from it being a comparatively new area of export finance and partly from past experience of difficulties. Some suggestions have been made above as to how difficulties could be avoided in the future. Export credit agencies are by nature conservative and averse to risk. Nonetheless, financing of training is an area in which they could help to create new business, rather than merely winning orders from competitors, and so carry out the function for which they were originally intended.

VII. CO-OPERATION AMONG DEVELOPING COUNTRIES

(Paragraphs 74 - 80 of the Issues Paper).

A. Introduction

295. There has been a great and growing feeling for many years that developing countries ought to be able to help each other - that the hard won experience gained by one country in its endeavour to advance, should be available to help other countries to avoid mistakes and profit from successes. This feeling reached its culmination in the important Buenos Aires Plan of Action for Promoting and Implementing Technical Co-operation among Developing Countries, adopted in September 1978, which gave world approval and United Nations support to the movement for technical co-operation among developing countries (TCDC). A copy appears in Annex XV, which will be made available in the conference room. The intention of TCDC is to go beyond merely the exchange of experience and enable countries to offer each other tangible support in fields in which one has a need and another has built up special competence.

296. TCDC is itself only one aspect of co-operation among developing countries in the broadest sense, and United Nations support is also given to economic co-operation among developing countries (ECDC), which also include the case in which the private sector industry of one country assists private sector industry in another. Issue 2 D for the Consultation on the Training of Industrial Manpower, "Co-operation among developing countries", is concerned with all the ways in which one developing country can help another towards increasing its resources of trained manpower (and womanpower) for all fields of the development of industry of all types. Its scope, therefore, is as wide as the scope of the whole Consultation, as described in Chapter I, and it is hoped that participants will take this

opportunity to put forward any idea which could help to increase or improve co-operation among developing countries in the development of the skills needed by their industries.

297. In doing so, participants should remember that a considerable amount of thought and effort has already been given to co-operation among developing countries (CDC), ECDC and TCDC over the years and in this chapter will be set out some considerations relating to co-operation among developing countries, so far as it relates to support for the development of industry, and especially for training of industrial manpower.

B. Classification of developing countries

298. Developing countries vary greatly and a number of attempts have been made to classify them. For example, the nineteen countries of the Asian region which are members of the ILO's regional training organization the Asian and Pacific Skill Development Programme (APSDEP), are grouped for study purposes into:

(i) advanced economies;

(ii) developing industrialized countries;

(iii) developing countries with a significant urban industrial sector; and

(iv) other developing countries.

299. Another classification is used by the 43 Islamic States:

(i) countries with a relatively developed industrial infrastructure and financial resources;

(ii) countries with a relatively developed industrial infrastructure but with inadequate financial resources;

(iii) countries without a sufficient industrial infrastructure but with financial resources;

(iv) countries without a sufficient industrial infrastructure and also inadequate financial resources;

(v) small countries, where the number of persons to be trained in certain disciplines does not justify to set up training facilities in the country itself.

C. Conditions for co-operation among developing countries (CDC)

300. CDC happens when a country which is more advanced helps another which is less advanced - or when two highly advanced developing countries exchange information and experience. To achieve CDC there must be in general, but not always, variations in the level of technological development between the countries concerned.

301. The least advanced countries inevitably have little to offer, but CDC does not mean that everyone has to help everyone else - rather that those developing countries which have advanced in some fields should be willing to pass on their experience - because this recent and relevant experience is the most helpful kind for other countries whose conditions are similar.

D. Regional co-operation among developing countries (CDC)

302. CDC takes place not only between individual countries but within groups. These groups may be geographical regions, or may come into existence because of some other common interest, for example:

- a former link with a single country, e.g. the Commonwealth;
- common economic and industrial interests, e.g. OECD;
- Group of 77;

- the least developed countries (LDCs) have no desire to group together but it is to their advantage to do so;
- political groups, often of countries geographically close together.

303. The practical effects of these factors can be seen in each main geographical region:

- Latin America includes countries at all stages of development up to the most highly advanced, and through the ILO regional training organization CINTERFOR already has effective CDC, and the basis for more within the region.
- Africa is in effect three regions, divided linguistically (Arabic, English, French and Portuguese). With only one or two exceptions in each region all the countries are in need of much outside technological support. The ILO regional training organization CIADFOR so far only contains 19 members, mostly from French-speaking countries mainly in West Africa (with Portuguese-speaking countries planning to join); the widening of its scope to cover all African countries is under consideration. However, in some other fields, such as education, there is now effective CDC between many African countries.
- Asia and the Pacific like Latin America contains countries at all stages of development including the most highly advanced. The ILO regional training organization APSDEP has attracted membership from throughout the region, including Japan and Australia, so there is in existence an association of both developed and developing countries. CDC thus has immediate and real meaning without any help from outside - though this is of course given and welcome.

304. The differences between regions are important and need to be

recognized. The special needs of Africa in regard to industry and training are recognized by the existence of the Industrial Development Decade for Africa.

305. Practical considerations have to be kept in mind when planning regional CDC. National interests do not always coincide with regional interests, and may change in the course of time. This must be taken into account when planning for example, a regional centre of excellence such as a training or technology institute. Political groupings form spontaneously and in response to a felt need. They therefore have a natural enthusiasm which is most valuable at the time of establishment of a new institution. But they can wither as well as flourish. By contrast United Nations' stimulated and maintained groupings offer neutral ground for even adversaries to meet, and an assured base if support dwindles for political reasons.

E. Interregional co-operation among developing countries (CDC)

306. Regions differ too, like countries, and are not all at an equal level of advancement. Even where they are equal, they may for cultural and historic reasons have followed different routes to reach their present stage of development and have found different solutions to the same problems. Thus exchange of information and experience between regions can be as valuable as between countries in the same region - even more so, if all the countries of a region have adopted a uniform approach to a problem and none has found a solution to it. Interregional co-operation is the domain of the international organizations. Good progress is being made. For example, there is active co-operation between the ILO's regional organizations CINTERFOR in Latin America, CIADFOR in Africa, and APSDEP in

Asia, for development of an Inter-Regional Training Information System (IRTIS). Details of their activities are contained in Annexes XVI and XVII together with those of the ILO's International Centre for Advanced Technical and Vocational Training (The Turin Centre).

F. Motives for co-operation among developing countries (CDC)

307. There is nothing to be gained from ignoring the motives which lead countries into CDC activities, and it should be frankly accepted that they are no different from the motives which sway developed countries, human nature being the same the world over. Miracles will not be seen. For a young developing country to forego a major development project in favour of another country is too much to be expected. National self-interest will intervene and an ideal shared major training institution may regretfully prove unattainable for such reasons. Nevertheless excellent training can be available from an enterprise even though its motive is hope of export orders. CDC is as much fraught with stresses and strains as any other activity in international politics, but it is a vital force for development which is there to be channelled and used.

G. Who is involved in co-operation among developing countries (CDC) activities?

308. Clearly the simplest case and original meaning of CDC is when a more advanced developing country aids a second less advanced developing country, which may be for reasons of history, culture, custom, religion, friendship, commerce, or pure chance. This is known as bilateral CDC and is greatly to be encouraged. But bilateral CDC alone will not suffice to achieve the increased flow of CDC desired, and in addition there are advantages in involving a number of developing countries in multilateral CDC, since within groups ideas multiply when minds interract.

309. CDC activities can take place without any involvement other than the developing country partners, or there can be varying degrees of external stimulus, and practical and financial help from international organizations or developed country contributors. This outside help can range from only a token up to many times the value of the inputs of the developing country partners themselves. Obviously the latter extreme ceases to be true CDC, since the vital aspect of self-reliance is absent. Nevertheless tripartite projects involving three countries can be a form of CDC. For example, one developing country may supply raw material after basic processing to a second developing country for final processing, for which the second country may require to import technology from a developed country. In this case both developing countries gain - the one by adding basic processing, and the other advanced processing to their industrial capability.

H. Where do CDC activities take place?

310. The obvious answer is "in developing countries", but it is not the only answer. Very effective CDC can take place between developing countries thousands of miles from either of them. Regular meetings or seminars in developed countries which over the years have built up established reputations and which attract high-class scientific and technological clientele can be a fruitful source of CDC. For example a technologist from Brazil compares notes with others from India and Australia, and they find that they all experience the same technical problem. In discussion it is clear that one or other has a better technical solution, and all three countries gain from the exchange of views.

311. Similar exchanges of information and experience also take place in developing countries. For example, Mauritius has established a preeminent

place in sugar technology, and attracts specialists from all over the world to seminars - to which even Brazil sends technologists - where all gain from the experience of the others.

312. The System of Consultations itself is designed to be an opportunity for developing countries to share ideas in a CDC manner, and it is hoped that many will gain on this occasion from hearing how other countries view the problems which all share.

313. There are important advantages in involving developed countries in some aspects of CDC, as a means of bringing together distant countries that would not otherwise meet. Similarly, the international organizations in their global and interregional activities also perform a CDC function. UNIDO and the ILO both arrange numerous seminars and group and individual training programmes on a regional, interregional or global basis in order to bring developing countries from far apart into contact with each other. UNESCO has extensive programmes for regional co-operation in educational, scientific and technological fields. Some political regional groups also have long-standing major programmes of intercountry exchanges. The Colombo Plan and the Commonwealth Fund for Technical Co-operation (CFTC) are examples. The former has provided 25,000 fellowship places since 1954.

I. Private sector economic co-operation among developing countries (ECDC)

314. A considerable amount of CDC already takes place outside the official government to government system so far described, and it is felt that much more private sector CDC (that is to say ECDC), could and should take place, provided it can be guided and co-ordinated with national efforts. In the early stages of technological development of a young country it is often

the transnational corporations (TNCs) which bring new technology to the country, through their local subsidiaries. There is understandable suspicion of the TNCs and their motives and methods in the Third World but nevertheless they fulfil essential functions provided their activities are harmonized with the national interest. Therefore, there is a valuable opportunity here, especially for the less developed countries, to raise the standard of their existing technology and to acquire new technology through the medium of controlled co-operation with the TNCs.

315. In the case of the advanced developing countries their larger enterprises are now reaching the stage of looking outside their own national frontiers. While their motives too are primarily commercial they also, like the TNCs, offer a means whereby other less developed countries can bring in necessary new technology.

J. UNIDO activities in co-operation among developing countries (CDC)

316. The part played by the ILO in CDC, through its three regional training organizations CINTERFOR, CIADFOR and APSDEP has already been mentioned, and is more fully described in Annex XVII. In its own fields of competence UNESCO has a wide range of CDC activities. UNIDO too has been active in CDC work for a considerable time. Its special interest in this field began with a proposal submitted by the government of Senegal to the First Meeting of the Permanent Committee of the Industrial Development Board as long ago as 1972, calling for an exchange of experience between developing countries in the creation or development of small and medium-scale industries. In 1975 the UNIDO Secretariat surveyed areas in which developing countries could offer technical co-operation for industrial development or would welcome such offers from other developing countries. In consultation with

some 40 developing countries. a preliminary list of opportunities for co-operation was issued in May 1975, including 360 specific needs and 265 specific offers of resources. Although this preliminary sample did not include information on a number of countries with important resources to offer, it nevertheless indicated a considerable potential for co-operation among developing countries in a fairly wide range of industrial fields and offered a useful basis for further development of the programme. Resources from the programme for Special Industrial Services have been used to meet the costs of international travel and selected other services, while co-operating countries themselves have borne costs normally involving only local currency expenditures, such as salaries of technical advisers, consultants and trainees and their in country subsistence and travel costs. Although of modest dimensions this programme provided a useful impetus to co-operation among developing countries, and constituted an essential reconaissance to establish a sound foundation for further co-operation.

K. Conditions for successful development of industry through CDC

317. Technological advancement - and training to achieve it - both need time, continuity and stability to succeed. Practical considerations must therefore enter into all planning for development of technology and industry. Some of these practical considerations are set out below, in respect of:

- regional and sector plans - training projects;
- national and enterprise plans - individual trainees.

318. Factors for success of CDC training projects. As a result of investigations it may be concluded that a large regional training project -

say for training technicians for a number of countries - is desirable, and that no further progress can be made on the basis of individual countries. A number of practical considerations must then be taken into account in planning a CDC project.

319. Practical experience shows that what may happen is the following. Agreement is reached on the construction in a selected country of an institution (university, college, specialized training centre etc.) on the understanding that it will also serve the needs of a number of neighbouring countries. Not long after it has been completed - often at international expense as well as that of the member countries - circumstances change and it ceases to be used by the countries other than the one in which it is located. The other countries are then once again without the training facilities they still need, while the owner nation now possesses a facility larger than its own requirements, which it cannot fill in economic capacity, nor afford to meet the full running costs.

320. Such situations should be looked at objectively but without discouragement. Experience shows they do happen. But experience also shows that success can eventually come out of apparent failure. Effective working co-operation can survive serious political upheavals provided people are convinced they are receiving real benefits. Thus the collapse of the East African Community destroyed many hopes, including a number of fine regional training institutions which were successfully shared by all the member countries. One of those institutions was the East African Management Institute, located at Arusha in Tanzania. But because its services are needed, it has been able by merit and determination to rise from the ashes like a phoenix and to become The Eastern and Southern African

Management Institute (ESAMI), which now provides management training for 17 countries compared with the original 3 - all the others attracted to join by the good results it achieves.

321. Comparison of regional training institutions shows that success depends among other things on:

- international ownership, so the institution can be seen to be neutral ground with no political bias.
- establishing from the first, and maintaining, a high technical and academic standard. This creates pride of ownership and a waiting list of students. With the latter there are no longer financial problems. The status of "centre of excellence" must be earned and maintained.
- A good staff, drawn mainly but not only from the countries of the region. They must have regional knowledge as well as knowledge of their own country, and should also have some international experience.
- an effective administrative mechanism for looking after foreign students far from home. Their welfare is important.
- freedom from currency problems - if the institution is located in a country which has a shortage of foreign exchange.
- and finally on the fact that excellence does not advertise itself. Good publicity and good public relations (both national and international) are also needed.

322. Success or failure with individual trainees. For over 20 years students and trainees from developing countries (mainly in Africa) have been going to other more advanced developing countries (mainly India), and

it is now proposed to increase the number greatly as a form of CDC not only in India but in other advanced developing countries offering suitable conditions, for example Brazil and Egypt.

323. It has long been recognized that in many cases training in an advanced developing country may be as suitable as in a developed country, and in some cases more so. The advantages for the trainee of training in another developing country may include physical, climatic and economic conditions which are more like his own country, and similar problems and obstacles which have been overcome in the recent past and are still fresh in mind. For example, except in a few cases it is not suitable to send a trainee from a developing country in Africa to Europe for training in road construction - it is much better that he go elsewhere in Africa. (When this happens it is of course the strongest motive for real CDC).

324. There are also advantages for developing countries which receive trainees from other developing countries. Quite apart from the benefit of influencing a possible future export purchaser - a consideration of growing importance now that India and Brazil are becoming exporters of industrial products - there is the intangible but nevertheless real value of good will. This has long been seen as a benefit of all international exchanges (provided, of course, that the people concerned have a happy experience) and the International Association for the Exchange of Students for Technical Experience (IAESTE) is based on this principle.

325. Turning now to what it is that makes a training fellowship in another country successful or otherwise here are some of the factors which affect the result:

- a well selected and well prepared trainee; keen to learn and aware of the situation he is going to and the way he will be expected to study there;
- a well selected and well prepared instructor, who wants to teach people from another country, and has been specially prepared to adjust his attitudes and methods to suit people of a different language and culture;
- a curriculum adapted to the needs of the foreign trainee, giving him knowledge he will find useful on his return to work in his own country;
- an absence of language problems - meaning adequate language training before starting technical training;
- sympathetic attention to the trainee's welfare, including travel, accommodation and allowances, to avoid him being distracted by non-training problems;
- supervision of the trainee's work to encourage him that someone cares about his progress - including sending regular reports to his employer back home;
- an agreed qualification or certificate at the end of his training course - based on a careful comparison of the equivalence of certificates in the two countries.

326. Concerning this last requirement it is pointed out in the Issues Paper (para. 81) that harmonization of qualifications should be an important ultimate objective of CDC, and experience shows that at the present time a foreign qualification may be an actual handicap to a returning trainee, rather than the advantage he hoped for.

327. Finally, an effort should be made on the trainee's return home:

- to discuss his training programme as a guide to others who may follow;
- to discuss the use to which he intends to put his training, and if possible give him support and encouragement;
- to follow up his progress some months later, in order to see whether his work has improved as a result of his training abroad.

L. Best sources of CDC for the development of industry

328. As has already been indicated (para. 303) CDC for industrial development must in practical terms concentrate on the prospects of assistance from the relatively advanced countries, such as Brazil, Egypt and India in each main geographical region.

329. Surveys show that in all three countries there is both a strong untapped ability to help and a strong latent desire to do so. Probably the same could be said about another five or ten developing countries, some in each of the three main regions, and it is on these dozen advanced developing countries that CDC possibilities for industrial development mainly depend.

330. But to enable such countries to give the help of which they are capable all reports emphasize that countries will have to organize themselves for this purpose, and thus an institutional "mechanism" will be required.

331. The sample surveys referred to above [11/] show that apart from ability and readiness to help with higher levels of technology transfer, and with the establishment of an industrial infrastructure, these countries also have potentially a large number of suitable training places available, both in training centres for basic training and in industry for industrial experience. The main function of the "mechanism", or national focal point, in this instance (it would also have many other functions, as appears elsewhere in this Paper) would be to arrange training and to monitor it on behalf of the sending developing country. Placements in industry especially would have to be selected carefully, since developing country industry is characterized by a wide spread between the best and the worst, and trainees must have only the best if they are to learn essential high standards.

M. Some characteristics of the national "focal point" for training

332. It would have to be accepted by industry, and must therefore be technologically competent and credible. For this reason it should include representatives of industry, while at the same time it must have full knowledge of and entry to the national training system.

11/ G. Spitalnik, Brazil, UNIDO, 1980;
O.A. El-Kholy, Egypt, UNIDO, 1980;
K.L.K. Rao, India, UNIDO, 1980.

These studies will be made available in the conference room.

333. It should be impartial, and have national status, for which it will need central government support.

334.While operating nationally it will need local representatives since it will be essentially concerned with detail - to look after individual foreign trainees whose numbers will, it is hoped, increase rapidly.

335. All this amounts to a very exacting specification. In Brazil there is a highly respected national training organization which combines all these qualities and therefore seems to be a natural candidate for such a national "focal point". In the other advanced countries which it is hoped will become centres of CDC the national training organizations may also prove to be the most suitable focal points, but the situation is not uniform. What is certain in all cases is that there are no existing financial resources for the purpose of setting up and operating the new service, and that additional resources will therefore have to be found from somewhere if increased CDC in industrial training is to become a reality.

N. Need for additional financial resources for national "focal points" for CDC training

336. These additional financial resources will be required for the following:

- administrative costs of the new agency, over and above the existing national structure. (Obviously if it can be added to an existing organization these costs will be less);
- foreign exchange costs of the additional trainees from other developing countries, i.e. international travel, etc. Hopefully

their local currency costs - training fees, stipend and local travel - might be met by the host governments, but if numbers were to increase as much as is hoped and intended this would no longer be possible.

337. The pilot project in 1975 showed that developing countries are willing and able to make some contribution in local currency, but within restricted limits. The situation is thus that the recipient countries who most need training help can least afford to pay, for example, international air fares and other foreign exchange costs, while the potential giving countries are themselves not rich and may also have foreign exchange problems. While recognizing both the need and the value of offering CDC training these nations do not have sufficient financial resources of their own to set up the necessary machinery, and the bilateral and international aid they receive is all committed to national projects which they understandably see as of higher priority even than helping other developing countries. Thus there will be a need for additional international financial resources to be made available if this very desirable programme is to get under way, so turning the hopes and intentions of the 1978 Buenos Aires Conference on Technical Co-operation among Developing Countries into reality.

CONCLUSION

338. Everyone knows that the components of development are man, money and machines. Each is essential and no two can succeed without the third. Yet in the complex circumstances of a developing country this critical mixture is difficult to attain. Some believe that fine equipment - the outward appearance of technology - will suffice. They press for the most modern machines and are satisfied with that. Others put their efforts into obtaining money, and are surprised to find that spending it effectively is more difficult than getting it. The purpose of this Consultation and this Background Paper is to draw the attention of the participants to the third of these critical elements - man. The transformation of willing and trainable people into a skilled work force, capable of achieving mastery of industrialization, is the aim of the training of industrial manpower, and without it there can be no development.

ANNEX I

UNIDO STUDIES UTILIZED IN PREPARATION FOR THE CONSULTATION ON THE TRAINING OF INDUSTRIAL MANPOWER

ISSUE I

Quantitative aspects

"The UNIDO Project: A World Model to explore institutional changes over the long run", Industry and Development no. 6, UNIDO, 1981

"Uses of the UNITAD Model", UNIDO/IS.305, 1982

Strengthening of national training systems

EUREQUIP: "La formation de la main-d'oeuvre industrielle - sa problématique, sa pratique et sa place dans les processus d'accès à la maîtrise industrielle", ONUDI, 1982

Z. Fares: "Etude de cas de coopération en matière de formation - l'expérience algérienne de l'acquisition de savoir-faire technologique par le biais de la formation industrielle", ONUDI, 1980

E. Rappel: "Training of manpower for the steel, petrochemicals and fertilizer industries in Brazil", UNIDO, 1978

S. Sediono: "Existing educational and training facilities for industrial manpower, manpower planning and practices in industrial training" (Indonesia), UNIDO, 1978

C. Stefanescu: "Expérience de la Roumanie dans le domaine de la formation de la main-d'oeuvre industrielle", The Stefan Gheorghiu Academy, ONUDI, 1982

TETOC: "Training of industrial manpower - the potential for more effective use of existing training facilities in developing countries", UNIDO, 1981

"The potential for more effective use of existing training facilities in developing countries: case studies of industrial training in Kenya and Peru", UNIDO, 1981

F. Vidossich: "Recursos humanos y complejidad tecnológica de los bienes de capital", informe provisorio, ONUDI, 1982

"Technological perspectives in the machine tool industry and their implications for developing countries", UNIDO/IS.226, 1981

"Thème de discussion no.1 pour la troisième Consultation sur l'industrie sidérurgique", ID/WG.374/1, ONUDI, 1982

"La technologie au service du développement", ID/WG.342/5, ONUDI, 1981

The organization of counterpart mechanisms in developing and developed countries

CESI/SICOFEP: "L'acquisition de compétences industrielles par les pays en développement et la situation française de l'offre de formation", ONUDI, 1981

I.A. Egorov: "The experience of the USSR in the area of training local specialists from developing countries", UNIDO, 1980

A. España: "Modalidades de cooperación internacional entre España y América Latina y el Caribe, capacidad española en materia de formación industrial, su posible utilización y adaptación a las necesidades de los países en desarrollo y naturaleza de las relaciones contractuales", ONUDI, 1982

Z. Fares: "Refléxions sur la fonction de coordination dans l'acquisition de formation et de savoir-faire technologique au niveau national et dans le cadre de la coopération Sud-sud", ONUDI, 1981

G.M. Hadjikov: "The experience of the People's Republic of Bulgaria in the formation and training of Bulgarian industrial manpower", UNIDO, 1982

B. Högberg: "The supply of vocational and management training in Sweden" UNIDO, 1981

A. Maneck: "Training of specialists and executive personnel from developing countries in conjunction with the export of plant and industrial equipment" (Federal Republic of Germany), UNIDO, 1982

H. Patteet: "Formation industrielle à destination des pays en voie de développement - le potentiel de la Belgique", ONUDI, 1981

K.L.K. Rao: "Focal points for co-ordination of industrial training between developing countries: a proposal", UNIDO, 1981

J. Schlaghecke: "Training of specialist and executive personnel from developing countries in the Federal Republic of Germany", UNIDO, 1980

W.W. Stevenson: "Establishing a training information delivery system for developing countries: the feasibility of focal points for co-ordinating information on training available in developed countries", UNIDO, 1981

TETOC: "Training of industrial manpower - potential for increasing utilization of training institutions in the United Kingdom for the benefit of developing countries", UNIDO, 1981

ISSUE II

The possible improvement of contractual relations

M. Salem: "Place et rôle de la formation industrielle dans les contrats de transfert des techniques: une approche juridique", ONUDI, 1980

"Les aspects juridiques de la formation industrielle", ONUDI, 1981

The financing of co-operation in the field of training for industry

J. Pearce: "Policies of export credit agencies in financing of training component in industrial projects", UNIDO, 1982

Co-operation among developing countries

O.A. El-Kholy: "Egypt's activities and potential for CDC activities in the field of industrial manpower training", UNIDO, 1980

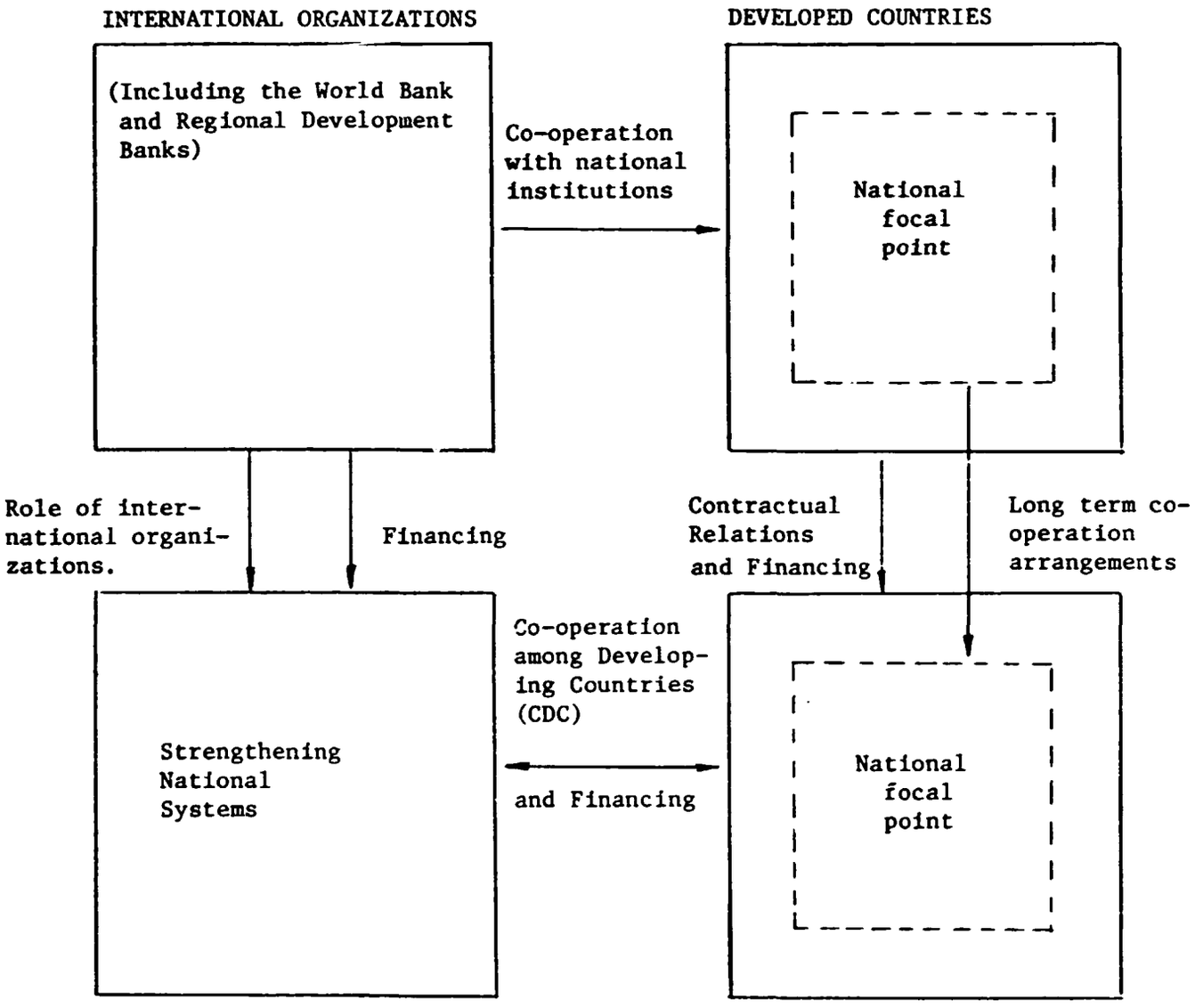
K.L.K. Rao: "Technical co-operation amongst developing countries: an assessment of industrial manpower training opportunities in India", UNIDO, 1980

J. Spitalnik: "Co-operation between Brazil and other developing countries in the area of industrial education and training", UNIDO, 1980

The role of international organizations and of national training institutions with international objectives

F. Viallet: "Rôle des institutions de formation industrielle à vocation internationale pour réduire la dépendance technologique des pays en développement", ONUDI, 1981

DIAGRAM ILLUSTRATING SOME OF THE ISSUES TO BE DISCUSSED AT THE CONSULTATION



Note: This is intended to be no more than an aid to the reader, and in no way represents any kind of statement of official policy.

ANNEX III

This glossary comprises terms which experience has shown often require definition in order to ensure unequivocal understanding in the field of training at international level. It does not lay claim to being a comprehensive dictionary of such terms. The French translation of each major term is indicated in brackets.

APPRENTICESHIP
(apprentissage)

See under: training within the undertaking

BASIC TRAINING
(formation de base)

Training aiming at imparting the fundamentals of an occupation or a group of occupations with a view to qualifying the trainee for immediate employment or to providing the basis for specialisation. It may but will not always be recognised as a distinct phase of initial training; it may constitute a part of retraining.

BLOCK RELEASE,
DAY RELEASE
(sessions à plein temps)
(cours hebdomadaires)

The system by which a trainee is authorised to be absent from work, with or without pay, in order to attend part-time courses of related instruction and general education constituting part of his training programme. It may be arranged as a number of hours (usually 1 to 2 days) each week (day release) or a number of weeks or months each year (block release).

See also: co-operative education
sandwich training

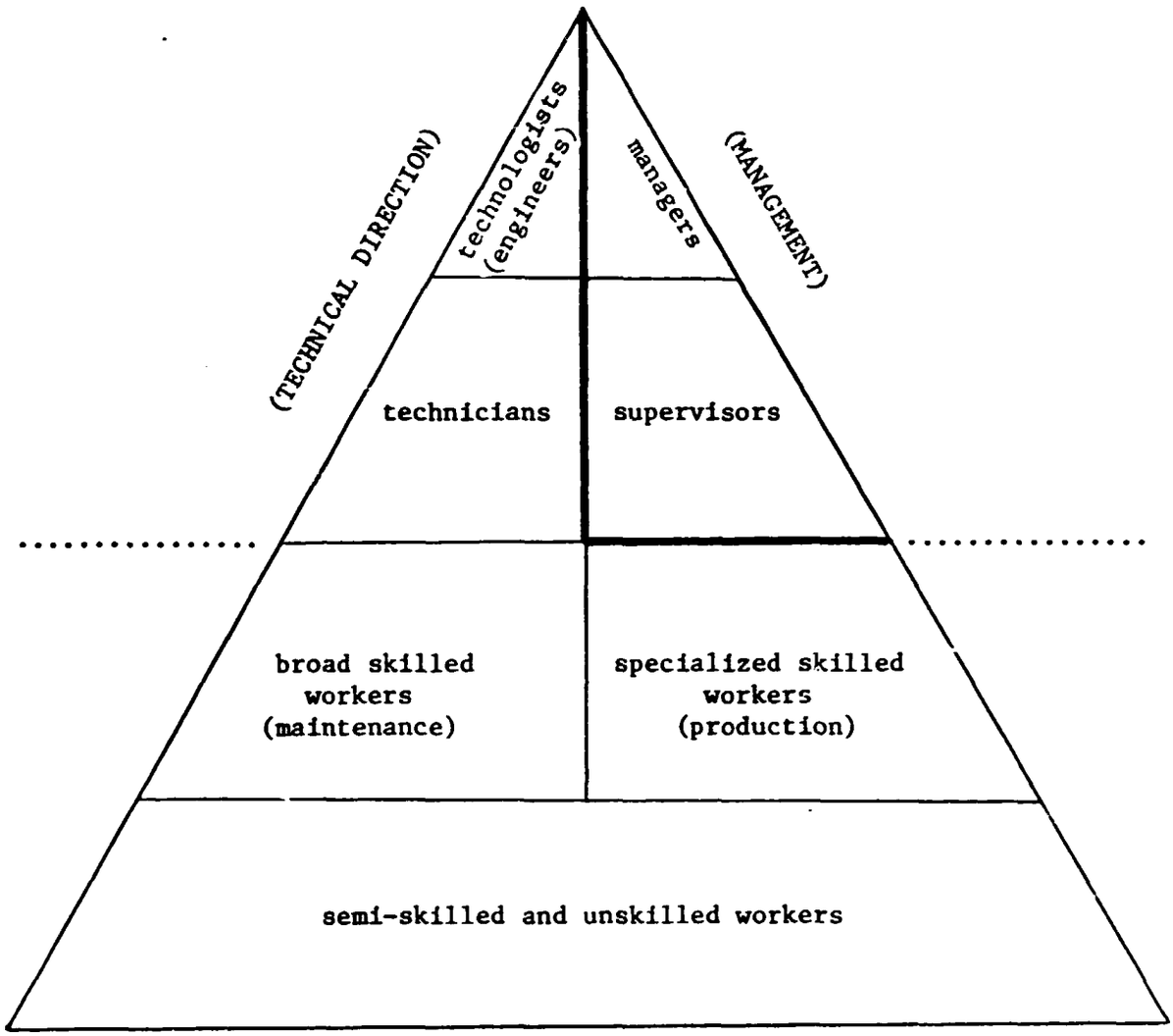
Note: For technical reasons the text of this annex is not bound with this volume, but the document will be made available separately.

INTERNATIONAL STANDARD INDUSTRIAL CLASSIFICATION (ISIC)
List of major divisions and major groups.

Division	Major group	Title of category
		Major Division 1. Agriculture, Hunting, Forestry and Fishing
11		Agriculture and Hunting
	111	Agricultural and livestock production
	112	Agricultural services
	113	Hunting, trapping and game propagation
12		Forestry and logging
	121	Forestry
	122	Logging
13	130	Fishing
		Major Division 2. Mining and Quarrying
21	210	Coal Mining
22	220	Crude Petroleum and Natural Gas Production
23	230	Metal Ore Mining
29	290	Other Mining
		Major Division 3. Manufacturing
31		Manufacture of Food, Beverages and Tobacco
	311-312	Food manufacturing
	313	Beverage industries
	314	Tobacco manufactures
32		Textile, Wearing Apparel and Leather Industries
	321	Manufacture of textiles
	322	Manufacture of wearing apparel, except footwear
	323	Manufacture of leather and products of leather, leather substitutes and fur, except footwear and wearing apparel
	324	Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
33		Manufacture of Wood and Wood Products, Including Furniture
	331	Manufacture of wood and wood and cork products, except furniture
	332	Manufacture of furniture and fixtures, except primarily of metal
34		Manufacture of Paper and Paper Products, Printing and Publishing
	341	Manufacture of paper and paper products
	342	Printing, publishing and allied industries
35		Manufacture of Chemicals and Chemical, Petroleum, Coal, Rubber and Plastic Products
	351	Manufacture of industrial chemicals
	352	Manufacture of other chemical products
	353	Petroleum refineries
	354	Manufacture of miscellaneous products of petroleum and coal
	355	Manufacture of rubber products
	356	Manufacture of plastic products not elsewhere classified
36		Manufacture of Non-Metallic Mineral Products, except Products of Petroleum and Coal
	361	Manufacture of pottery, china and earthenware
	362	Manufacture of glass and glass products
	369	Manufacture of other non-metallic mineral products
37		Basic Metal Industries
	371	Iron and steel basic industries
	372	Non-ferrous metal basic industries
38		Manufacture of Fabricated Metal Products, Machinery and Equipment
	381	Manufacture of fabricated metal products, except machinery and equipment
	382	Manufacture of machinery except electrical
	383	Manufacture of electrical machinery apparatus, appliances and supplies
	384	Manufacture of transport equipment
	385	Manufacture of professional and scientific and measuring and controlling equipment not elsewhere classified, and of photographic and optical goods
39	390	Other Manufacturing Industries
		Major Division 4. Electricity, Gas and Water
41	410	Electricity, Gas and Steam
42	420	Water Works and Supply
		Major Division 5. Construction
50	500	Construction
		Major Division 6. Wholesale and Retail Trade and Restaurants and Hotels
61	610	Wholesale Trade
62	620	Retail Trade
63		Restaurants and Hotels
	631	Restaurants, cafés and other eating and drinking places
	632	Hotels, rooming houses, camps and other lodging places
		Major Division 7. Transport, Storage and Communication
71		Transport and Storage
	711	Land transport
	712	Water transport
	713	Air transport
	719	Services allied to transport
72	720	Communication
		Major Division 8. Financing, Insurance, Real Estate and Business Services
81	810	Financial Institutions
82	820	Insurance
83		Real Estate and Business Services
	831	Real estate
	832	Business services except machinery and equipment rental and leasing
	833	Machinery and equipment rental and leasing
		Major Division 9. Community, Social and Personal Services
91	910	Public Administration and Defence
92	920	Sanitary and Similar Services
93		Social and Related Community Services
	931	Education services
	932	Research and scientific institutes
	933	Medical, dental, other health and veterinary services
	934	Welfare institutions
	935	Business, professional and labour associations
	939	Other social and related community services
94		Recreational and Cultural Services
	941	Motion picture and other entertainment services
	942	Libraries, museums, botanical and zoological gardens, and other cultural services not elsewhere classified
	949	Amusement and recreational services not elsewhere classified
95		Personal and Household Services
	951	Repair services not elsewhere classified
	952	Laundries, laundry services, and cleaning and dyeing plant
	953	Domestic services
	959	Miscellaneous personal services
96	960	International and Other Extra-Territorial Bodies
		Major Division 0. Activities not Adequately Defined
0	000	Activities not adequately defined.

ANNEX V

DIAGRAM SHOWING LEVELS OF TRAINING FOR INDUSTRY



Notes: - a technician may also be a supervisor;
- a technologist may also be a manager.

Note: For technical reasons the text of this annex is not bound with this volume, but the document will be made available separately.

United Nations Educational,
Scientific and Cultural Organization

ANNEX VI

Revised Recommendation concerning Technical and Vocational Education

adopted by the General Conference of Unesco
at its eighteenth session, Paris, 19 November 1974

ANNEX VII

ILO CONVENTION NO.142 AND RECOMMENDATION NO.150
CONCERNING VOCATIONAL GUIDANCE AND VOCATIONAL TRAINING*/

*/ For technical reasons the text of this annex is not bound with this volume, but the document will be made available separately.

ANNEX VIII

MEMORANDUM OF UNDERSTANDING CONCERNING CO-OPERATION BETWEEN ILO AND UNIDO

AND

AGREEMENT BETWEEN UNESCO AND UNIDO

MEMORANDUM OF UNDERSTANDING CONCERNING CO-OPERATION BETWEEN THE INTERNATIONAL LABOUR ORGANISATION AND THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

The Director-General of the International Labour Office and the Executive Director of the United Nations Industrial Development Organization have agreed upon the following guidelines to govern co-operation between and co-ordination of the activities of the ILO and UNIDO regarding the promotion of the industrial development of developing countries in the spirit of the Lima Declaration on Industrial Development and Co-operation, and having regard to the central role of UNIDO in reviewing and promoting the co-ordination of all activities of the United Nations system in the field of industrial development.

I. Vocational Training

1. The ILO will continue to develop policies and guidelines and carry out operational programmes in the field of vocational training, vocational guidance and rehabilitation for all types of industrial undertakings, irrespective of economic sector or type of ownership for workers of all levels up to and including personnel at the technician and instructor level. This also includes special training programmes for women and young workers. The ILO activities aim not only at building up or upgrading professional skills but at meeting the requirements of undertakings and the aspirations of workers to vocational career building.

2. Complementary activities of UNIDO will be designed to provide post-employment specialised training in the use of specific equipment and process directly related to the operation of the undertakings, such as specialised quality control, and specific aspects of maintenance and repair. UNIDO will continue to be responsible for the training of graduate engineers.

3. Wherever possible, ILO vocational training activities will be geared to the industrial development plans and targets established by UNIDO at the country level. Where the industrial development activities of UNIDO will require the training of workers or specific skills development programmes, the ILO will endeavour to provide such training to UNIDO specifications. The ILO will also provide whenever required and possible vocational training advisers to participate in UNIDO's industrial development surveys or in programmes aiming at developing groups of industries.

4. Both organisations will co-operate in research and development of training systems and methods and in publishing the results of such research. UNIDO will provide the ILO with information and advice on new technologies as they affect training requirements and methodologies. To the same end, UNIDO will, whenever possible, participate in ILO meetings and workshops on industrial vocational training.

II. Management Development

5. ILO will be responsible for broad intersectoral programmes for the enhancement of managerial awareness, competence and social responsibility of management personnel at all levels of supervision and skills in all branches of economic activity irrespective of type of ownership, including:

(a) identification of needs and programming of action to meet such needs;

(b) dissemination of principles and techniques of effective management;

(c) development of institutions;

(d) training of trainers;

(e) development of management consultancy; and

(f) provision of management research and information services.

6. UNIDO will be responsible for activities in the field of industrial management, including:

(a) Enterprises and factory level industrial management, including the design of management systems, training and consultancy;

(b) Management of industrial research institutes;

(c) Management of industrial estates and services provided at the estates;

(d) Management of industrial fairs;

(e) Management of industrial information centres;

(f) Management of plan and project implementation in the industrial sector, including training of personnel of ministries of planning and industry in the field of industrial development;

(g) Industrial banks, including schemes for exchange of information and co-operation between banks;

(h) Industrial project implementation at the micro level; and

(i) Institutional aspects of industrial management, in particular trouble shooting and consultancy services at the factory and/or industrial branch levels.

UNIDO will therefore provide training for the management of specific industries, enterprises, plants and processes.

7. Both organisations will co-operate closely and promote joint action in the following fields which are of common concern:

(a) Behavioural sciences and motivating people for development;

(b) Methods and techniques for rational decision-making;

(c) Research in, and publication of information on, key issues of management.

III. Maintenance and Repair

8. Within its vocational training activities, the ILO will provide training to workers and supervisors in the normal and routine maintenance operations of industrial equipment. Similarly, the ILO will continue to include the organisational and cost aspects of maintenance in its management development programmes as a means of enhancing general managerial competence.

9. UNIDO will be responsible for the organisational, economic, technological and engineering aspects of maintenance and repair, including planning of maintenance and repair schemes, establishment of maintenance and repair centres, provision and manufacturing of spare parts, overhaul and repair of industrial equipment and training of personnel specifically engaged in maintenance operations.

IV. Small-scale Industries

10. Both organisations recognise the needs for a comprehensive, coherent approach to the development of small-scale industries in developing countries, and in particular in the least developed of developing countries. To this end, they will exchange full information on their ongoing and projected projects in the least developed countries, especially in connection with country programming exercises, and will devise joint or co-ordinated programmes of action.

11. Within the framework of the foregoing approach, the ILO will be primarily responsible for the development of manpower skills for small-scale industries through formal and non-formal learning systems, including vocational training and management development to the extent defined in preceding paragraphs.

12. Within the framework of the same approach, the UNIDO will be primarily responsible for promoting the development of small-scale industries through the identification and development of domestic markets for the manufactured goods produced by small-scale industries, feasibility studies, financial and fiscal policies designed to promote the development of small-scale industries, including the provision of incentives to entrepreneurs and assistance in drawing up requests for financing, provision of factory accommodation or workshop facilities, including in particular industrial estates and the provision of industrial and technological extension services.

13. Both organisations will closely co-operate in activities related to the identification, motivation and development of potential entrepreneurs and the promotion of entrepreneurship.

V. Industrial Health and Safety, Working Conditions and Environment

14. The ILO will consult UNIDO on the development of its programme for the improvement of working conditions and the environment, in so far as it relates to the industrial sector. Where UNIDO activities offer opportunities for the improvement of working conditions and the environment, UNIDO will seek the assistance of the ILO.

15. UNIDO will pay due regard to the health, safety and working conditions aspects of its planned industrial activities and consult the ILO thereon. The ILO will make available to UNIDO, on a regular basis, all its standards, manuals and guides, and other publications relating to industrial health and safety, as well as to working conditions in industry. The ILO will also provide UNIDO, upon request, with information and advice on specific industrial health, safety and working conditions problems. Particular care will be taken to avoid conflicts in or erosion of standards.

16. The ILO and UNIDO will consult each other in regard to the planning of meetings dealing with industrial health and safety and working conditions in the industrial sector.

17. Where UNIDO is organising courses which include an industrial health and safety or working conditions component, the ILO will provide the necessary information and assistance for the handling of that component.

18. The advice of industrial health and safety centres established with the assistance of the ILO concerning industrial health and safety problems at country level will be made available to UNIDO.

VI. Employment, Income Distribution and Appropirate Technologies

19. In regard to the relationship between employment promotion policies and industrial development policies, both organizations will be guided by the joint policy paper entitled "Industrialization, Employment and Social Objectives" which they jointly presented to the Second General Conference of UNIDO (1975).1/

20. The ILO will provide UNIDO with information and advice on the employment and income destribution aspects of the long-term industrial development strategies on which UNIDO will undertake studies and research activities.

21. When UNIDO and the ILO undertake survey missions on industrial development strategies or employment promotion strategies, each organization will provide the other, as appropriate, with the required technical expertise.

22. In the field of research work on appropriate technologies the ILO will deal with the socio-economic aspects of the question while UNIDO will deal with the technological, techno-economic and engineering aspects of the question, where possible research work will be jointly undertaken.

23. In joint technical co-operation projects concerning appropriate technologies UNIDO will provide the technological, techno-economic and engineering expertise and ILO the socio-economic expertise.

24. The results of joint research and technical co-operation projects will be jointly published by the ILO and UNIDO.

25. The ILO and UNIDO will provide each other with the fullest information on current and proposed technical co-operation and research projects related to appropriate technologies.

VII. Industrial Activities

26. The ILO will regularly furnish UNIDO with advance information on meetings held within the framework of its Programme of Industrial Activities and on the agenda of such meetings.

27. At the request of the ILO, UNIDO will supply contributions to the general reports for such meetings, dealing with technological, economic and allied developments in the industry concerned and, as appropriate, with industrial development policies in the industry concerned, so as to test the views of employers and workers as well as of Governments.

1/ Document ID/CONF.3/9

28. The ILO will also invite UNIDO contributions to the reports on the technical items on the agenda of such meetings where the subject-matter is of concern to UNIDO.

29. Upon invitation of the ILO, UNIDO will attend and participate in major industrial meetings and shall receive all notes on proceedings.

30. The ILO will keep UNIDO informed of the action taken by governments and national organisations of employers and workers in the sector concerned to implement the recommendations of such meetings. The ILO will seek UNIDO's co-operation whenever required for the implementation of the recommendations addressed to it.

31. To the extent that resources permit, contacts at working level will be strengthened in regard to preparation and follow up of such meetings as well as to research and publications activities.

VIII. Special Measures

32. The present memorandum has been drawn up taking into account the spirit of the Lima Declaration and Plan of Action as embodied in its major provisions. It is, however, recognised that in the light of General Assembly Resolution 3362(S-VII) on development and international economic co-operation and the Declaration and Programme of Action recently adopted by the World Employment Conference, new areas of long-range co-operation and co-ordination will have emerged. Accordingly, it is hereby agreed that a joint task force be promptly established to review the correlation of these decisions and to define programmes of broad-based co-operative action in such areas as employment and the distribution of industries, industrial consultations and negotiations, industrial development and the satisfaction of basic needs, rural industrialisation, transfer of technologies, selection and application of appropriate technologies and any other areas of common interest which the task force may identify.

IX. Measures of Implementation

33. The ILO and UNIDO will keep each other informed of the development of their respective activities related to industrialisation, including but not limited to the specific arrangements otherwise provided herein, and will ensure that they are co-ordinated, complementary and mutually supporting. To this end, consultation and co-operation will be initiated at the earliest possible time, preferably at the pre-planning stage.

34. The ILO and UNIDO will maintain the present joint Working Party composed of one senior permanent member from each organisation and such other officials as may be required for the consideration of any particular question. The joint Working Party will meet from time to time and at least once a year, alternately in Geneva and Vienna, under the chairmanship of the permanent member of the host

organisation. At its regular meetings, the Working Party will review all current and proposed technical co-operation projects of mutual interest. Whenever necessary, the Working Party, suitably composed for the purpose, will consider issues of policy and make recommendations thereon to the Executive Heads of the two organisations.

35. The present memorandum will be jointly communicated to the Secretary-General of the United Nations and to the Administrator of the United Nations Development Programme, and brought to the attention of the Governing Body of the ILO and of the Industrial Development Board of UNIDO.

36. The Executive Head of each organisation will bring this memorandum to the notice of its headquarters and field staff concerned with instructions to apply faithfully each and every one of its provisions.

X. Final Clauses

37. The present memorandum of understanding will supersede the "Memorandum of Guidelines for Co-operation between ILO and UNIDO" signed at Geneva on 3 April 1968, and all subsequent understandings and agreements on co-operation between the parties.

38. The present memorandum will come into effect upon signature and constitutes the basic guidelines governing co-operation between the ILO and UNIDO until otherwise modified by mutual agreement. This memorandum may be terminated by either party upon six months' notice in writing.

Done at Geneva on 31 August 1976.

Francis Blanchard
Director-General of the
International Labour Office

Abd-El Rahman Khane
Executive Director of
the United Nations Industrial
Development Organization

AGREEMENT BETWEEN THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION AND THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

WHEREAS the promotion, by the United Nations Educational, Scientific and Cultural Organization (hereinafter referred to as "Unesco") of collaboration among the nations in and through education, science and culture is interlinked with assistance by the United Nations Industrial Development Organization (hereinafter referred to as "UNIDO") in promoting and accelerating the industrialization of developing countries with particular emphasis on the manufacturing sector;

WHEREAS Unesco and UNIDO recognize that the close interdependency of educatic and scientific and technological research with industry calls for closer co-operation and collaboration between the two organizations in a number of activitie.

WHEREAS for this purpose a "Memorandum of Understanding on Guidelines for Co-operation and Co-ordination of Activities between Unesco and UNIDO" was signed on 4 April 1968 by the Director-General of Unesco and the Executive Director of UNIDO;

WHEREAS Unesco and UNIDO are desirous of improving the co-operation between them by, in particular, co-ordinating better their activities in all areas where their functions and activities are complementary and mutually supportive;

WHEREAS at its 78th session the Executive Board of Unesco adopted decision 78 EX/7.1 by which, inter alia, it welcomed the aforementioned Memorandum and invited the Director-General of Unesco to pursue his consultations with the Executive Director of UNIDO "with a view to presenting to a future session of the Board for its approval an agreement between Unesco and UNIDO".

NOW THEREFORE the parties hereto agree as follows :

ARTICLE I

With a view to achieving a more intensive collaboration between them, Unesco and UNIDO shall :

(i) keep each other informed of their respective ongoing and planned programmes, activities and projects at the earliest possible time;

(ii) review their work on a regular and continuous basis in order to identify areas of common interest both for information and co-operation purposes;

(iii) select from among the programme activities approved by their respective competent organs, specific issues of common interest and prepare work programmes identifying responsibilities, sources of funds and procedure for joint effort;

(iv) maintain each other informed of the advancement of their approved work programmes;

(v) evaluate the results obtained.

.../..

ARTICLE II

1. The parties hereto shall initially co-operate and make joint effort in the following areas :

   (i) development of science and technology policies;

   (ii) scientific and technical research and the development of appropriate technologies;

   (iii) development of proper liaison and co-operation between industry and the system of research and education in developing countries;

   (iv) scientific and technological information;

   (v) development of co-operative programmes concerning the social, cultural and environmental implications of industrialization.

2. Areas for co-operation and joint effort, in addition to those listed in paragraph 1 above, shall be identified by the parties as and when required and in such cases, objectives, programme areas, scope of collaboration, and the responsibility of each organization shall be agreed upon by the two organizations.

ARTICLE III

1. In order to ensure systematic contacts at the organizational and technical levels between the staff of the two organizations working in similar fields, a Unesco/UNIDO Inter-Secretariat Committee on Co-operation (hereinafter called "the Committee") shall be established to supervise the elaboration of the operational procedures referred to in Article IV, paragraph 1 below, to monitor the implementation of this Agreement and to consider and make recommendations to the Director-General of Unesco and to the Executive Director of UNIDO on policy issues.

2. The Committee shall meet at least once every six months.

3. The Committee may appoint temporary working groups to function within its framework and to serve as focal points for co-ordination of activities in specialized fields of common interest.

ARTICLE IV

1. Operational procedures for the implementation of this Agreement shall, without prejudice to the terms of paragraph 2 below, be agreed upon by the parties hereto as needed.

2. The Director-General of Unesco and the Executive Director of UNIDO shall make appropriate arrangements for the promotion of adequate co-operation and co-ordination between the two organizations, especially at the field level.

3. In the implementation of this Agreement due consideration shall be given to the decisions and recommendations of the Administrative Committee on Co-ordination relating to the co-ordination of activities throughout the United Nations system.

.../..

ARTICLE V

Copies of this Agreement shall be transmitted to the Secretary-General of the United Nations, to the Administrator of the United Nations Development Programme and, through him, to the Resident Representatives of the United Nations Development Programme.

ARTICLE VI

1. This Agreement may be amended or revised by agreement between Unesco and UNIDO.

2. This Agreement may be terminated by either party on 31 December of any year by notice given to the other party not later than 30 June of that year.

ARTICLE VII

This Agreement replaces and supersedes the "Memorandum on Guidelines for Co-operation and Co-ordination of Activities between Unesco and UNIDO" of 4 April 1968.

ARTICLE VIII

1. This Agreement shall be signed by the Executive Heads of the two organizations in the case of Unesco after the approval by its Executive Board.

2. The Agreement shall enter into force upon signature.

For the United Nations Educational, Scientific and Cultural Organization

A.-M. M'Bow

Amadou-Mahtar M'Bow
Director-General

Date 22 DEC. 1978

For the United Nations Industrial Development Organization

Abd-El Rahman Khane
Executive Director

Date 29th January 1979

ANNEX IX

TABLE INDICATING THE ACTIVITIES OF UNIDO, ILO AND UNESCO RELATED TO SOME OF THE SUBJECTS COVERED BY THE CONSULTATION ON THE TRAINING OF INDUSTRIAL MANPOWER

	UNIDO	ILO	UNESCO
Training of:			
. Technologists (professional level)	X		X
. Managers	X	X	X
. Technicians	X	X	X
. Supervisors	X	X	X
. Skilled workers (broad skills)		X	X
. Operators (specialized skills)		X	X
. Semi-skilled workers		X	X
Training of:			
. Trainers	X	X	X
. Instructors	X	X	X
Training of national industrial planners	X		
Development of small-scale industry	X	X	
Rural industrial development	X	X	X
Appropriate technologies	X	X	X
Training for safety and health		X	X
Strengthening of national technological capabilities	X		X
Transfer of technology	X	X	X

Important Note: This table is only an approximation. Each organization deals with a specific aspect of training for a category of trainee. Therefore the organizations make every endeavour to be complementary. This can be seen from the Memoranda of Understanding entered into by them.

ANNEX X

CHECKLIST OF INDUSTRIAL TRAINING TOPICS

For Visiting/Investigating
Reporting
Preparing training programmes

1. TRAINING CENTRES

- Buildings?
  - Site?
  - Services?
  - Design?
  - Use and maintenance?
- Equipment?
  - Fixed (machines)?
  - Movable (hand tools)?
  - Other (teaching aids)?
  - Selection?
  - Use and maintenance?
  - Replacement?
- Training Materials?
  - Source?
  - Disposal/sale of production?
  - Choice of training exercises?
- Staff? Instructors?
  - Training of Instructors?
  - Other staff?
    - e.g. Technicians/maintenance of equipment?
  - Training of other staff?
- Students?
  - Recruitment/selection (aptitude testing)?
  - Accomodation?
  - Employed (salary)? Unemployed (stipend)?
  - Finding jobs for?
- Management?
  - System?
  - Efficiency?
- Finance?
  - Capital?
  - Recurrent:
    - Running costs of machines?
    - Training materials?
    - Tools and stores?
    - Replacements?
- Survey (technical and training content of courses)? Who by?
- Inspection (administration of centre)? Who by?

2. TRAINING CONTENT

- **Practical?**
  - In the centre?
  - On the job (in co-operation with industry)?
  - Up-grading (for industry)?
- **Related theory?**
  - In the centre?
  - On the job?
  - Relationship with colleges?
  - Maths and drawing?
- **Testing and Certification?**
  - Preparation of syllabuses?
  - Standard setting?
  - Phase tests?
  - End test?
  - Theory exam (objective testing)?
  - National or local certificate?
- **Methods?**
  - Audio visual aids: produced locally?
    centrally?
- **Special purposes?**
  - Training for maintenance?
  - Process training?
  - Safety training?

3. AFTER LEAVING THE TRAINING CENTRE

- **Supervision of further training on the job?**
  Technical supervision?
  Welfare?
- **Relationship with industry?**
  - Direct (centre staff)?
  - Indirect (ministry staff)?
- **Up-grading training?**
  - Organized nationally?
    locally?
  - Financed by industry?
    training organization?

4. TRAINING POLICY

- Need/demand for training?
  - For private industry?
  - Nationalized industry?
  - Training against demand?
    - . Employed?
    - . Definite job?
    - . Hoping for a job?

- Organization of training?
  - Government controlled?
  - Industry controlled?
  - Tri-partite control? (employers, employees, government)
  - Apprenticeship system?
  - Selection of courses?
  - Preparation of syllabuses?
  - Standard setting?
  - Testing and certification?

- Relationship with other training?
  - Ministries?
  - National projects?
  - Aid agencies: Multilateral?
  - Bilateral?

- Financing training?
  - Levy? Industry agreed? or government imposed (tax)?
  - Incentives to industry? Grants? Tax rebates?

- Training system?
  - Modular?
  - Sandwich?
  - Shift system?

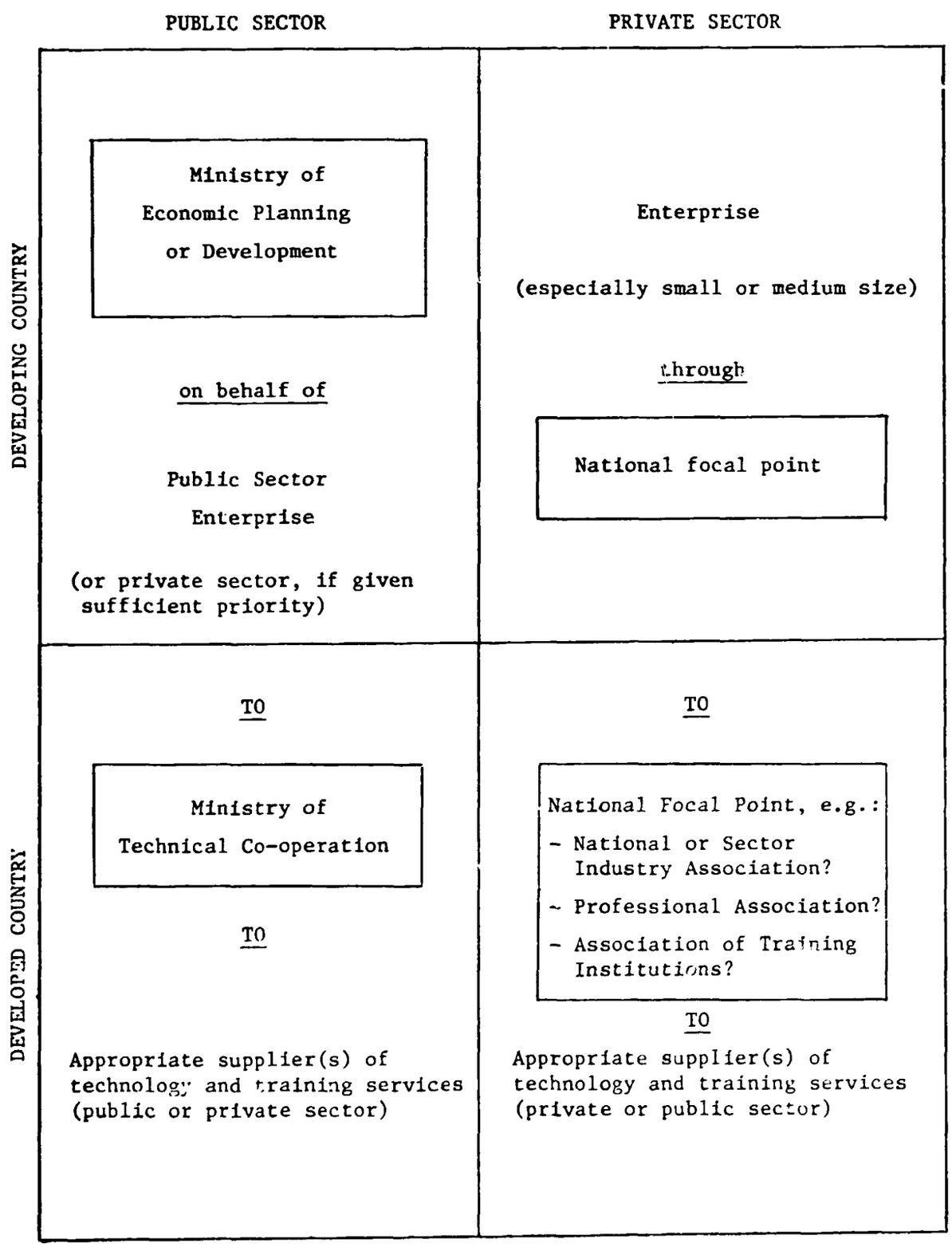
- Link with education?
  - Technical and vocational education?
  - Higher education (university)?

- Instructors?
  - Recruitment?
  - Instructor training system/institutions?
  - Follow-up on-the-job (training techniques officers)?
  - Up-dating/further training?

- Training Officers? Training Development Officers? (to liaise with industry)
  - Employed by who?
  - Recruitment?
  - Training?
  - Supervision?

ANNEX XI

DIAGRAM ILLUSTRATING POSSIBLE NATIONAL CO-ORDINATING "FOCAL POINTS" IN DEVELOPING AND DEVELOPED COUNTRIES



ANNEX XII

UNIDO MODEL FORM OF TURNKEY LUMP SUM CONTRACT
FOR THE CONSTRUCTION OF A FERTILIZER PLANT (UNIDO/PC.25)

AND

GUIDELINES ON THE UNIDO MODEL FORM OF TURNKEY LUMP SUM CONTRACT
FOR THE CONSTRUCTION OF A FERTILIZER PLANT (UNIDO/PC.40)

(EXTRACTS CONCERNING TRAINING)

Note: For technical reasons the full text of this document is not bound with this volume.

UNIDO MODEL FORM OF TURNKEY LUMP SUM CONTRACT
FOR THE CONSTRUCTION OF A FERTILIZER PLANT (UNIDO/PC.25)

ARTICLE 16

TRAINING

16.1 The PURCHASER and CONTRACTOR agree that the adequate training of the PURCHASER's personnel is a necessary condition for the fulfilment of the objectives of the Contract.

16.2 The CONTRACTOR shall provide training for the PURCHASER's personnel both at Site and at other plants, in accordance with the requirements of Annexure XVIII and Article 4.

16.3 Training facilities to be provided by the CONTRACTOR shall be as detailed in Annexure XVIII.

16.4 The PURCHASER and the CONTRACTOR shall agree at the first co-ordination meeting contemplated under Article 6.8 the time, place and details to be established for the training of the PURCHASER's personnel and final details for training shall be forwarded to the PURCHASER within (___) months following the Effective Date of the Contract. The CONTRACTOR shall competently train the PURCHASER's personnel for the purposes and on the basis referred to herein for the periods contemplated in Annexure XVIII at a plant or plants, using the processes of the Licensors identified in Article 4.5 which have commenced production in the 5 years immediately preceding the Effective Date of the Contract. The training of the PURCHASER's personnel should be of a standard which is adequate for operating and maintaining the Plant.

16.5 The PURCHASER shall undertake to supply personnel for training with qualifications and experience recommended by the CONTRACTOR, and agreed to by the PURCHASER.

16.6 Travel and living expenses for the PURCHASER's personnel shall be borne by the PURCHASER.

ANNEXURE XVIII

TRAINING OF PURCHASER'S PERSONNEL

1. The training of the PURCHASER's personnel shall consist of training at Site and abroad. Training at Site shall be given by the CONTRACTOR's personnel and training abroad shall be entirely arranged by the CONTRACTOR, and shall include operational experience at factories using the same or similar processes.

2. The PURCHASER and CONTRACTOR have agreed that training abroad shall be at the following operational factories. 1/

(names of factories and location)

3. The CONTRACTOR shall provide technical training for the PURCHASER's personnel in accordance with Articles 4.30, 16 and 20.7 of the Contract for the following personnel and for the time stated against each personnel. 2/

Designation	Number	Time	Training Units
(a) Chief Production Manager	1	7 months	Ammonia Plant. Urea Plant. Overall Management.
(b) Chief Mechanical Engineer	1	6 months	Ammonia Plant and Urea Plant Maintenance facilities. Instruments.
(c) Production Engineers	5	6 months 1 month 6 months 1 month	Ammonia Plant. Urea Plant. Urea Plant. Ammonia Plant.
(d) Electrical Engineer	1 4/	3 months	Power Station.
(e) Instruments Engineers	2	6 months	Instruments. Course on Plant Instrument Maintenance.

1/ It is suggested that a list should be given in this Annexure and selection made after the meeting contemplated under Article 6.8.

2/ These are typical for a country where chemical plants already exist.

3/ Designation indicates the ultimate functions of the trainee.

4/ May be increased to 4 engineers if required, and 6 months duration.

Designation	Number	Time	Training Units
(f) Maintenance Engineers	5	6 months	Maintenance of Plants/Workshop.
(g) Chemists	1	3 months	Laboratory and Field Analysis.
(h) Chief Chemist	1	3 months	Laboratory and Field Analysis. Research.

5. The CONTRACTOR and PURCHASER shall agree on the contents of the training programme, the training methods, and procedure for evaluation of the progress of training. The training given to the PURCHASER's personnel will specifically involve the operation for short periods of the Plant sections concerning them, (under the direction and control of the CONTRACTOR), and for maintenance staff in actually operating maintenance equipment.

6. The CONTRACTOR shall appoint a training officer for the PURCHASER's trainees abroad, who shall send a monthly Progress Report on each trainee to the PURCHASER.

7. In addition to the training given abroad, the CONTRACTOR will organise and supervise a training programme at Site. For this purpose, the CONTRACTOR shall provide books and manuals and the CONTRACTOR and PURCHASER have agreed to purchase a Simulator (or similar equipment) for this purpose on a cost reimbursable basis (as per Article 10 and Annexure XXIV). Both parties shall agree on a detailed Site training programme as early as possible, but not later than the 12th month after Effective Date.

GUIDELINES ON THE UNIDO MODEL FORM OF TURNKEY LUMP SUM CONTRACT
FOR THE CONSTRUCTION OF A FERTILIZER PLANT (UNIDO/PC.40)

ARTICLE 16

TRAINING

The appropriate training of the PURCHASER's personnel is one of the most important pre-requisites for the proper operation of the Plant. Therefore, it is recommended that the PURCHASER make a very careful selection of people to be sent for training in the plant(s) selected under the Contract. When selecting people for this task, the PURCHASER should try to ensure that the trained staff are employed for the commissioning period as well as for the normal operation of the Plant.

The CONTRACTOR has the obligation to provide training at a reasonable cost in plants which have been in operation for some years and that are reference plants in the CONTRACTOR's offer, to selected personnel of the PURCHASER. It may be desirable to arrange this training in plants built by the CONTRACTOR in other developing countries so that the trainees are fully exposed to the problems of operation and maintenance in developing countries.

As a reciprocal arrangement for training in other plants the PURCHASER should consider the possibility of providing training in future to others at reasonable fees.

In Article 16.2 the CONTRACTOR not only has the obligation to train the PURCHASER's personnel abroad, but also to organize and supervise a training programme at Site (Annexure XVIII). For the latter purpose training aids may be needed (e.g. simulator) and these may form part of the supply list, and be included in Annexure VIII.

However, Article 16 does not provide for a further training of the same staff in case of possible inefficiency of the first trainees and/or non-availability of trained personnel at the time of Start-Up. In the event that in spite of the original training programme further training becomes necessary, the PURCHASER and CONTRACTOR could agree upon the conditions thereof.

ANNEX XIII

PROPOSALS FOR IMPROVING CONTRACTUAL RELATIONS IN CONTRACTS INCLUDING TRAINING 1/

(a) PURPOSE OF TRAINING

It is necessary to ensure that the specific purpose of training is expressed in the contract. It seems to us that the best way to take the purpose of training contracts into consideration is to ensure that there is complete agreement between the training objectives and the recipient's objectives. The declaration should be recorded in the preamble to the contract: firstly the recipient's declaration, followed by the supplier's declaration.

Declaration by the recipient

"The recipient intends to undertake the following project..... (a precise definition of this project)"

or "The recipient wishes to fulfil the following objectives..... (a list of these objectives follows)"

After listing his objectives, the recipient will indicate that his decision to enter into contract and the choice of supplier were determined by the desire to fulfil these objectives.

"In order to fulfil his objectives (or carry out his project), the recipient wishes to entrust the fulfilment of appropriate training requirements to a competent supplier".

Declaration by the supplier

"The supplier has noted the recipient's objectives (or project) and declares that he is competent to carry out training in accordance with these needs, as defined below."

or "The supplier agrees with the recipient's objectives (or project) and declares that he has the necessary skills and experience at hand to meet the corresponding training requirements, as defined below."

1/ M. Salem: Legal Aspects of Industrial Training, October 1980

This does not constitute a formal agreement between the two parties. However, correlation of the two unilateral declarations leaves no doubt as to the wishes of the recipient and the willingness of the supplier.

(b) AIMS OF THE CONTRACT

It is necessary to express the supplier's obligations and specify their content and mode of fulfilment which may meet the recipient's needs. One cannot fail to observe that the supplier may have an ambivalent function: to give advice and to provide a service. It would therefore be useful if the advisory function appears as such in the contract, if it has in fact been exercised by the supplier. For example:

> "The services defined below have been established in accordance with the study carried out by the supplier."

or

> "The services defined below are directly based on the study carried out by the supplier."

The only case which does not cause confusion between the advisory function and that of providing a service is that where the recipient either has a competent research department, or commissions a third party to undertake the study - e.g. UNIDO technical assistance or other institition.

Training should be defined in terms of objectives: i.e. to train persons "capable of". For example:

> "The persons trained will be required to undertake a specific task (management or production) in the workshop (or factory) designated by name."

As regards the qualitative aspects, a general provision could be made, which does not of course exclude precise definitions of the type of training envisaged:

"The training in question will be conceived and carried out in such a way that it meets the objectives expressed in the preamble."

(c) TRAINING RESOURCES

Training resources represent the human and material resources (educational equipment and the training content of the programme) as well as its functional definition (carrying out of training operations). No precise idea of the means to be implemented can be deduced from reading the contract. Certain elements, however, are never absent from the contract: these are the duration of training and, in the case of a contract granting technical assistance, the number of instructors allocated for training purposes. The notion of man/months which constitutes the backbone of training contracts is based on a combination of these two elements. However to purport to define training solely in terms of man/months, without other description, is taken to extremes and debases the training contract. Hence the absolute necessity to go beyond the notion of man/months and specify the essential elements of a proper training contract.

Absence of definitions of training resources in training contracts

Three assumptions may be advanced to explain these gaps:

(i) The case of implied definitions: This is the classic case of registration of a group of trainees for a predetermined training course. The programmes, resources, methods etc. are those normally used by the training institution and registration itself constitutes a contract.

(ii) A standard definition of training resources exists between the parties, but is not expressed in the contract: In this eventuality the parties should include a condition in the contract worded, for example, as follows: "In order to meet the training objectives, the supplier will use training resources defined in the document headed (.....), appended to this contract". Under these conditions, the document appended is considered to be an integral part of the contract and binds the supplier to the same extent as the conditions of the actual contract.

(iii) Definition of resources subsequent to signing of contract:

In this situation the parties sign the training contract, but mutually agree to defer definition of the means until a later stage. However, the parties should not draw up a contract leaving blanks for the supplier to fill in in an arbitrary manner. The procedure for definition of the resources should therefore be specified in the contract.

Two variants are noted in practice:

(i) The contract expressly leaves the task of definition of resources to the supplier. This restricts the recipient's position and is undesirable.

(ii) The contract stipulates that definition of the resources must be negotiated procedure. For example, it may prescribe that these resources are to be proposed by the supplier and approved by the recipient. In this case, which is satisfactory to both parties, there should be a further condition to specify:

- the date by which these resources must be defined;
- the mode of definition (proposal of resources by which party, discussion, decision etc.);

and a condition relating to the time limit:

"The training programme and the means of implementing it will be defined (or completed) within ..... to commence as soon as trainees have been selected"

It happens in many cases that the programme and resources cannot be determined or agreed until a study has been made of the standard of trainees for whom the said training is intended. Therefore this procedure is technically coherent.

The condition concerning the mode or definition, stressing the need for close co-operation between the parties, could be stated as follows:

"The training programme and resources will be proposed by the supplier and settled by mutual agreement".

The main problem in this context seems to be the technical inexperience of the recipient in regard to selection of the programme and resources. Consequently, the need to improve the recipient's technical abilities should be stressed. It is in this instance that UNIDO could give technical assistance to the recipient.

(d) SELECTION OF CANDIDATES

The main objective of selection operations is to choose from among the candidates presented those who seem capable of undergoing the training laid down in the contract.

This is an important clause, since the success of training depends largely on the availability of suitable candidates. The supplier of training must therefore be given a reasonable discretion in the matter of acceptance or rejection, and should be permitted to take part in the selection process himself.

(e) INDUSTRIAL WORK EXPERIENCE

(i) Selection of practical training places

The choice should be dictated by the main purpose of the practical training periods: the acquisition of experience in order to master the techniques and machines which the trainee is required to use at the recipient's works.

The following provision could therefore be laid down in the contract:

"Industrial work experience will be arranged to provide experience similar to that of the recipient, in a developed or developing country".

The supplier is better informed of the possibilities for practical training, so he is more competent to make a suitable choice. It is therefore logical to entrust him with this task.

"The supplier will undertake to place trainees in factories offering experience similar to that of the recipient, in a developed or developing country".

(ii) Definition of technical conditions of training periods

The efficacy of a training period is known to depend to a large extent on the conditions under which it takes place. It will, for example, be necessary to ensure that a balance exists between a passive approach (the trainee observes the activities of his counterpart at the factory where he is received) and an active approach (the trainee takes an active part by taking the place of his counterpart). It should therefore be specified in what manner the trainee will receive his training, and to what extent the trainee may enjoy particular facilities, including access to documentation.

Whilst the principle of the definition of conditions of training may not call for discussion, determination of these definitions may cause problems. For example, in one case: The supplier of training is responsible for training periods by receiving trainees at his own factories, those of his subs diaries or even those with which he has institutional connections. In this case, there is nothing to prevent the contracting parties from defining together the technical conditions of training and entering them in the contract.

The procedure is different in the second case: that in which the supplier of training is not himself responsible for arranging training periods. This applies in particular to training institutions which, being financially independent, request industrial companies to accept trainees.

Examination of contracts informs us that the conditions under which the training periods take place are often tacitly agreed and implicitly left to the discretion of the company receiving the trainees.

However, if the supplier does not himself arrange the training periods, this does not exempt him from his obligations. In fact, the contractual relationship which the supplier establishes with the company receiving the trainees is derived from the notion of sub-contracting. Now, in normal legal parlance, the sub-contract is linked to the main contract and is not a substitute for it. In other words, the supplier should not normally be able to make use of the reluctance of his potential sub-contractors to limit the content and extent of his obligation towards the recipient in the main contract. In the case of international law, the absence of a legislator requires that another way be found to re-establish harmony. This task falls to the actors themselves - the contracting parties.

The difficulty of defining conditions in respect of training periods could be resolved in the following way:

- First of all, the principle of a common definition of the technical conditions of training periods could be adopted.
- Secondly, the supplier's commitments could be re-stated.

This procedure may be expressed by the following type of conditions:

> "The supplier will endeavour to get the companies receiving trainees to accept the following conditions ..... (a list of the desired conditions then follows)"

or

> "Definition of the technical conditions of the training periods will be based on the following principles ..... (a list of principles then follows)".

Two principles will be paramount: trainees should be allowed to take an active part in production or management operations; the aim of practical training should be to ensure that the trainee is fitted for the job he will be required to undertake at the recipient's factory.

(f) VERIFICATION OF EFFICACY OF TRANSFER OF KNOWLEDGE AND KNOW-HOW

The evaluation of case studies has shown that provision for verification of transfer of knowledge and know-how is almost systematically omitted from the contract. It is necessary to investigate the possible modes of verification.

(i) Nature of checks: They should aim to assess the acquisition of knowledge communicated and they should also seek to test the creation of operational personnel: "effective" personnel, not just "knowledgeable" personnel.

The following clauses to this effect could be inserted in the contract:

> "Upon completion of training, trainees will take tests to evaluate the skills acquired. The tests will mainly - but not solely - comprise practical tests and will take place at the recipient's company".

or

"Trainees will take practical tests relating to the jobs for which they have been trained".

(ii) Panel of examiners: The supplier could be entrusted with the function of evaluating the skills acquired. Although being the most common practice, this could lead to a confusion of roles: the supplier is both a judge and a party to the contract.

- A joint bipartite panel could be responsible for the assessment. However, the risks of deadlock in the case of diverging assessments by the recipient and the supplier constitute a reason for its rejection.
- Another solution would be that the recipient be solely responsible for assessment of trainees. Two main objectives would be the technical incompetence of the recipient and the fact that the recipient would now become both the judge of the results and a party to the contract. If the recipient were made solely responsible for the assessment of the skills acquired, he could become a law unto himself. However, if this solution were to be adopted by the parties concerned, the following clauses should be retained:

  "The recipient will undertake to assess the skills acquired by trainees upon completion of training".

  This condition should be accompanied by the following precautionary measures;

  "The supplier and the recipient will jointly fix the date, place and duration of the assessment of the skills acquired by trainees".

  "The supplier will be informed of the content of the tests and the scales of marking and has the right to be present at the time of assessment and to express reservations".

  "If the supplier disputes the result of the assessment, the recipient undertakes not to oppose the intervention of an independent expert arbitrator".

- It should be noted that if this latter precautionary measure is to have a positive effect, the expert arbitrator must intervene within a very short time. The nominee could be selected from a list of experts drawn up by UNIDO.

- As regards the acceptance of the cost of intervention of an expert arbitrator and the approval of assessment, the following clauses could be adopted:

  "The costs of intervention of an expert arbitrator will be equally shared between the two parties".

  "If the results of the assessment are judged to be satisfactory by the recipient, or by the expert arbitrator if necessary, the parties will sign a report certifying completion of training".

  "If the results of the assessment are judged to be not satisfactory by reason of the default of the supplier, then the supplier undertakes to second technicians at his own expense to finalize training at the recipient's works. The number of technicians and the duration of secondment will be fixed by the parties".

(iii) The assessment is made by a joint tripartite panel:

A panel representing both contracting parties and a third party (independent expert) could be set up. However, the intervention of an outside expert is automatic in this case. This solution is without doubt at least as justifiable as the previous one, but it has the drawback of making the procedure more cumbersome. However, if the independent assessor were to be a member of the national training authority of the country there could be a number of real advantages, both practical and in training terms.

World Bank Education Sector Policy Paper
Extracts concerning training.

World Bank, April 1980

Introduction

The policy of lending by the World Bank[1/] for education has evolved gradually since 1962 when the the first education project was approved. From 1963 to 1970, the policy was elaborated in memoranda from the President of the Bank and lending was largely restricted to hardware and those areas of education that directly met a first comprehensive Education policy paper was issued, which recommended a systematic study of the entire education sector of a country as a prerequisite for financing, and suggested comprehensive aid to education. In 1974, a second sector working paper was issued to reflect a broadening of the Bank's development policy. Four governing principles for aid to education were emphasized: the provision of minimum basic education, meeting critical needs for manpower, efficiency, and equity.

The present paper updates the Bank's interpretation of educational development and outlines a framework of policy for lending to education. The paper is divided into two major parts: the first deals with issues and trends in the development of education (Chapters 1-7), and the second describes the past and future policies and programs of lending by the Bank for education (Chapters 9 and 10) within the context of overall external aid to education (Chapter 8).

The Bank's involvement in education since 1962, and up to June 1979, resulted in 192 education projects in 81 countries, most of which were generated in collaboration with the United Nations Educational, Scientific and Cultural Organization (Unesco) by means of a Co-operative Program started in 1964. These projects span virtually all subsectors of education, and their diversity and shifting concerns reflect the evolution of the Bank's policies. An analysis of the lending program over time shows an increase in aid to primary education, more emphasis on technical education at the expense of general and diversified curricula, and less support for formal agricultural education. Expenditures for the construction of physical facilities remain the principal outlay, although a noticeable increase in technical assistance signifies a new emphasis on substantive aspects of education projects. There has also been a

1/ All references to the World Bank in this paper refer to the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA).

substantial growth in lending for project-related training, and education components have been increasingly included in urban and rural development projects.

During the last two decades, developing countries have achieved substantial progress in education. The Bank's involvement has encouraged educational improvements, modified traditional methods, helped raise local management capacity, and provided a strong source of funding for buildings and equipment. Enrollment rations at all levels have increased at an unprecedented rate. The non-schooling gap (the difference between school-age populations and actual enrollment) at the primary level has narrowed in middle-income countries with income per capita exceeding $521 (in 1975 prices), though not in countries at lower income levels. Enrollment in higher education has expanded at a greater rate than enrollment in secondary education, and enrollment in secondary education has expanded faster than enrollment in primary education. The same pattern is observed in developed countries, although enrollment ratios at the secondary and tertiary levels in developing countries are still far lower than those in developed countries. It may be that, in some instances, investment in education at higher levels has been too rapid, and at the expense of some other needs of society. The new concepts of development in the 1970s and a growing egalitarian spirit among governments have shifted the emphasis in educational development in favor of democratization in the distribution of education, especially at lower levels.

The initial efforts in educational development during the 1960s were directed toward expanding enrollment rather than changing the character of education. Nevertheless, certain trends emerged: assertion of self-reliance and national identity, broader concepts of development, and growing concern about the capacity of the system to meet the demands placed upon it. In educational development plans of the late 1960s and early 1970s, the emphasis was on qualitative objectives - regard for social equity, development of science teaching, improving the relevance of education to national needs, and the building of a national capacity for management and research in education.

As a result, education systems have become better structured and have extended their reach to areas previously unserved. Serious attempts have also been made to improve the quantitative efficiency and the quality of education systems, and to make them more relevant to indigenous life and culture and to the different needs of regional populations within a country. Many developing countries, in an effort to improve the relevance of education, are reactivating

their national languages and moving toward the use of local languages in the early years of formal schooling. Management of education has been strengthened, moreover, and many countries have established units for planning and research to cope with the growing complexities of the sector.

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Meeting Manpower and Skill Requirements

Various combinations of formal, nonformal, general and specialized education and training schemes were considered in Chapter 5. These combinations cover a wide spectrum, including formal general education, diversified schools, professional training, on-the-job training, and a combination of education and work. The applicability of these choices in the modern, informal urban, and rural subsectors of the economy were also described. The Bank's more recent concern about expanding basic and primary education does not reduce its interest in developing critical manpower. The Bank will support three forms of training: general pre-employment training for the labor market at all levels in projects of the education sector, project-related training, and training for the rural sector, and the urban, informal sector within the urban or rural development projects.

The World Bank will support general pre-employment training for the labor market by funding tracer studies as a preliminary step to the identification of education and training pronects. In many countries, employment problems of varying proportions among persons leaving school will necessitate close scrutiny of investments in long and expensive programs of pre-employment technical education in the formal system. Nonformal programs offered at an accelerated pace in vocational training centers following junior secondary school -or, in austere situations, at the completion of all or parts of primary level-education - may prove more effective and less costly than formal technical and vocational institutions. A substantial part of the training supported by the Bank will include programs for retraining or upgrading the skills of both rural and urban workers or the jobless. Training in management at all levels and for all sectors will have a high priority.

The Bank will continue to support project-related training designed to meet three principal objectives: (1) ensure that qualified manpower is available to operate the project or enterprise, (2) improve planning, finance, and other management functions of the institution beyond its daily operations, and (3) create a capability within the entity to handle the need for developing manpower beyond the life of the project. Project-related training, which pro-

vides specialized managerial, technical, or operational skills pertaining to a particular sector, does not duplicate the training offered in schools or vocational training institutions; rather, the two are complementary. To this end, the Bank's approach now embraces the formal and nonformal systems, in addition to project-related training, as a national policy for developing human resources.

The relationshps between middle-level education and work are intricate and diverse. The Bank will, therefore, analyze previous experiences systematically, assist developing countries to experiment with promising concurrent and successive blends of general and vocational education, in-school and out-of-school training, short and long training courses, and combinations of education and work and with forging appropriate links between ministries responsible for education and labor; and finance tracer studies within vocational education projects to identify and monitor changes in attitudes and habits of productive workers.

New programs must reach the rapidly growing urban and rural populations, and education and training must become more relevant to the living conditions of these groups. The Bank will continue to finance project components, both in education and in other sectors, for meeting this objective as well as for developing lasting training capability and organizational framework. In addition, the Bank will monitor new approaches in these fields. In the rural development sector, future lending by the Bank will seek to strengthen links among formal education, vocational education, and field extension services.

In the 1980s, there will be an increasing demand for more secondary education, as improvements in the internal efficiency and the widening of scope of first-level education produce an increase of potential applicants for the middle level. The Bank will review mechanisms for prociding general secondary education at reduced costs and consider funding exploratory projects to assess their feasibility. It will also support the expansion of secondary education at reduced unit costs in some countries, but will limit its support to improving the quality of education at this level elsewhere, depending on the scope and quality of this level of education in the country concerned.

As in the past, the Bank will continue to support higher-level education and training selectively in postsecondary training institutions and in universities. Support for tertiary education will generally be for building specific resources that are important for development, such as centers for agricultural and industrial research and professional training programs; developing mana-

gerial capacity through management programs and institutions; establishing basic research capabilities, through programs and centers, in the various disciplines of natural and social science; and setting up "outreach" programs to directly involve universities in national development.

Experience has shown that isolated improvements in an otherwise inefficient system are ineffective. The Bank will, therefore, encourage schemes for the general improvement of the efficiency and management of a university system, such as staff development, reorganization, better use of staff time and physical facilities and so on. To alleviate critical shortages of professional manpower, assistance will be provided to increase student places in development oriented disciplines, such as agriculture, engineering, medicine, science, economics, and management, and in developing alternatives to the university model, such as community colleges, polytechnics and the open university.

Improving the knowledge and skills required for economic development is closely related to improving technology and developing indigenous technological capacity. The Bank will, therefore, continue to provide assistance to elements of technological infrastructure, such as laboratories for applied research, standards institutions, pre-investment facilities, technical information centers, and consulting and engineering organizations. The development of analogous institutions in the fields of social and public administration will also be encouraged.

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Conclusion

The educational needs among developing countries are diverse and the policies and strategies depend on local conditions. Such a situation necessitates a continuing dialogue between the Bank and its member countries, as well as greater collaboration between the Bank and professional institutions and experts in the developing countries. The emphasis on well-formulated sector work as a basis for lending provides the Bank an opportunity for such a dialogue; and the development among developing countries of national capacities for analysis and management in education makes such a dialogue more valuable.

It is hoped that this collaborative relationship will evolve in such a way that the role of the borrower will increase gradually during the project cycle in activities where the leading part has usually been played by the Bank or other external agencies. Countries will be encouraged to conduct

their own sector reviews that may involve broad participation by public and private professional management and representative groups. This would result in a set of priorities, programs, and plans for national educational development, articulated by countries and used as a basis for dialogue on policy with the Bank, and for generating projects that increasingly focus on sectorwide policy issues.

As the capabilities of the borrowers develop, identification, preparation and evaluation of projects would progressively become their responsibility. While Unesco and the Bank will continue to provide assistance to countries in project preparation and sector analysis, the form will gradually change from direct responsibility to that of guidance, although in some countries a more active role by the Bank will still be needed for some time. The Bank will co-operate with borrowers to speed up this process by supporting training programs to build up national technical and analytical capacities and by offering guidance through seminars and joint involvement in the different stages of the project cycle. At the same time, the Bank will continue to approach lending for education and training in an experimental posture and with an open mind, and will systematically analyze experiences derived from projects to enrich its dialogue with borrowers and to strengthen the analytical basis for the evolution of its policy of lending for education.

ANNEX XV

THE BUENOS AIRES PLAN OF ACTION FOR PROMOTING AND IMPLEMENTING TECHNICAL CO-OPERATION AMONG DEVELOPING COUNTRIES

REPORT OF THE UNITED NATIONS CONFERENCE
ON THE TECHNICAL CO-OPERATION AMONG DEVELOPING COUNTRIES
(A/CONF.79/13/Rev.1)

BUENOS AIRES, 30 AUGUST - 12 SEPTEMBER 1978

Note: For technical reasons the text of this annex is not bound with this volume, but the document will be made available separately.

THE ILO INTERNATIONAL CENTRE FOR ADVANCED TECHNICAL AND VOCATIONAL TRAINING (TURIN CENTRE)

Date of establishment

1963; operations began in 1965.

Status

An integral part of the International Labour Organisation, which is a specialised agency of the United Nations.

Aims

The Centre was established by the ILO, in co-operation with the Government of Italy, as an essential component of the total ILO technical co-operation effort in the training field. The Centre's policies and programmes are designed to provide the kind of advanced training essential for development but not available locally or in the region. They form part of an integrated ILO approach to training which is aimed primarily at assisting developing countries in their efforts to establish and run their own national training systems, schemes and institutions. The Centre achieves its task through the conduct of training courses and seminars, the administration of fellowship programmes, the production of training materials, the provision of advisory services and the conduct of research. The Centre's aims are furthered by:

- its capability of responding quickly to urgent short-term and medium-term needs;
- its capacity and flexibility in handling the training of large numbers of participants (in courses) or small numbers (as interns or in study groups), or even of individual beneficiaries of fellowships;
- its location in Europe, combined with its resources and expertise;
- the special unique nature of the services which it provides; the "tailoring" of its courses to fit local needs; the intensive and residential nature of the training; the practicability and effectiveness of the training methods and materials; continuous quality control and evaluation.

Administration and organisation

The Centre is administered by the Director, and he is responsible to the Board of the Centre.

The Board is appointed by the ILO Governing Body. It is responsible for the Centre's management and reports to the Governing Body on the Centre's activities. Francis Blanchard, the Director-General of the ILO, is ex-officio Chairman of the Board.

The Board consists of 24 members appointed by the Governing Body from amongst its own membership (12 government, 6 employers' and 6 workers' representatives), together with one member each appointed by the Secretary-General of the United Nations, the Administrator of the United Nations Development Programme, the Director-General of the United Nations Educational, Scientific and Cultural Organisation, the Executive Director of the United Nations Industrial Development Organisation, the Government of Italy and the City of Turin.

The Board is advised by a tripartite Programme Advisory Committee.

Staff: (on 1 January 1978)

	Full-time	Visiting
Professional	115	51
Technical and Administrative Support	170	-

Training courses

The Centre's primary activity is the conduct of predominantly "tailor-made" advanced training courses at a post-experience level for:

(a) directors and supervisory staff of training institutions, training officers and instructors engaged in management, technical and vocational training;

(b) middle-level and senior managers in private, co-operative and public industrial, commercial, agricultural and service enterprises; and

(c) officials of trade unions and of employers' organisations.

As regards training for vocational training instructors, the Centre is frequently requested to supplement the facilities existing in developing countries, or to respond to urgent problems arising in a country which may be greatly alleviated by the rapid training of a corps of persons who, besides having a modern training competence, will have common techniques and common

approaches. The Centre has also built up extensive expertise in the field of maintenance - an area still requiring reinforcement in developing countries.

Since the Centre's creation, over 15,000 fellows from 140 countries and territories have benefited from its training activities.

The advanced training courses organised at the Centre are fully residential. The Residence adjoining the Centre consists of a group of attractive pavilions set out in grounds bordering on the river Po. Each fellow has a well-furnished duplex studio with a single bed and shower. Reading and writing rooms, television, restaurants and sports facilities are available. The Centre has its own medical service. The Centre's Social Life Section organises a range of events to enable fellows to get to know each other and to benefit from the unique international environment and interaction at the Centre.

Training methods

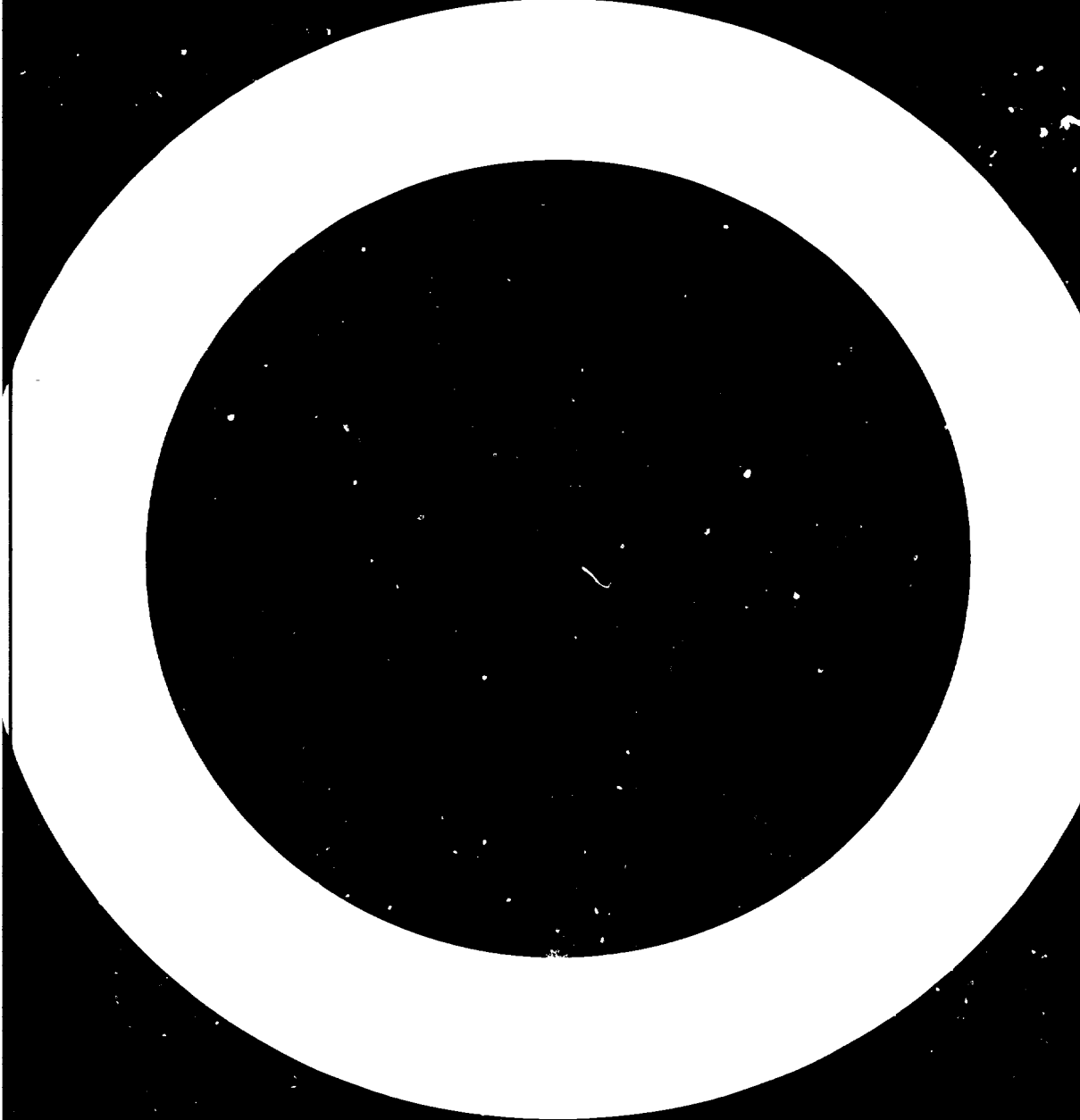
Special attention is given to the use of appropriate training methods and materials aimed at making participants more effective in their jobs when they return home. Lectures, discussions, seminars, conferences, forums, individual tutorials, study visits, case studies, exercises, games and role-playing are all used and these are supported by audio-visual aids and training materials. The emphasis is on methods requiring the active involvement of the fellows and on continuous testing and evaluation, including evaluation of the programmes by the participants.

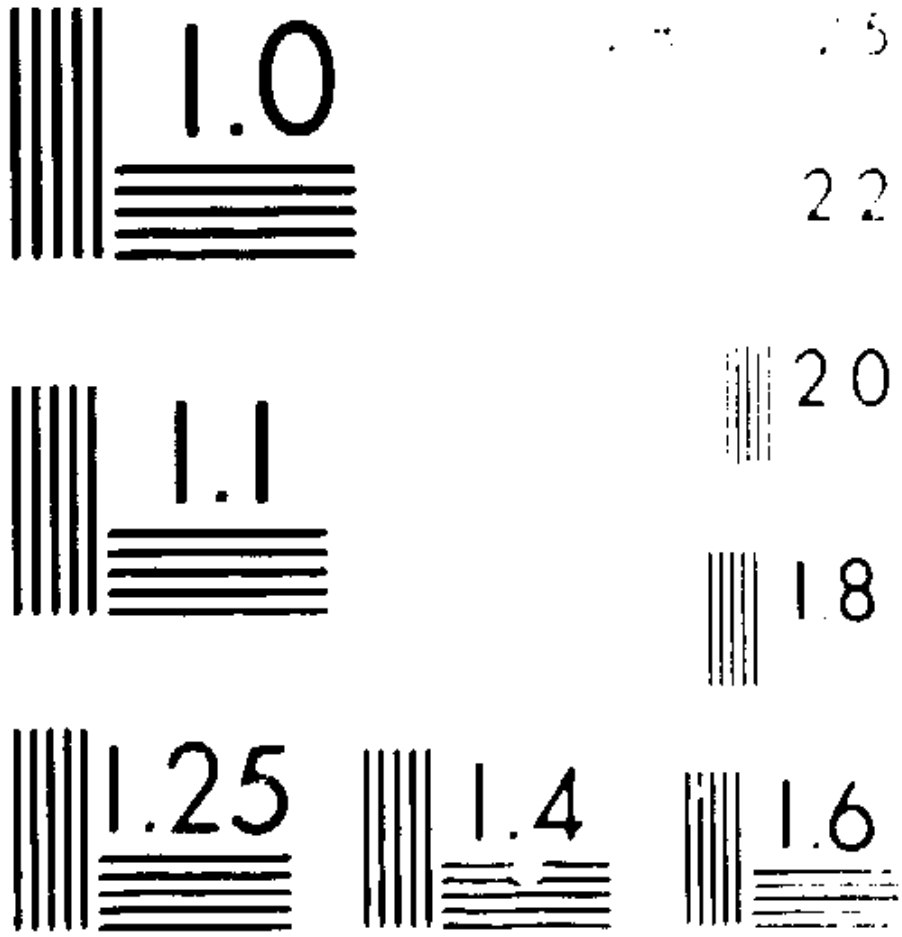
Participants are selected on the basis of their function and position of responsibility, with a view to achieving a multiplier effect.

Fees

The cost of fellowships varies according to the nature and duration of each training course and the numbers participating in each course. (A course group generally consists of 25 participants).

Additional charges for international travel to and from the Centre, board and lodging at the Centre's adjoining Residence, a European study visit, and the provision of a daily allowance for incidentals and of a book allowance are calculated according to prevailing airline and other travel tariffs and UNDP fellowship rates.

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Seminars

Seminars are organised by the Centre on behalf of other training institutions and agencies. In addition it organises brief courses and seminars in developing countries at the request of governments and organisations facing special or urgent training problems.

Fellowships

One set of advanced individual training programmes organised by the Centre is linked to individual fellowships provided by international organisations, governments, or other sponsoring entities. These programmes developed following a decision by the Director-General of the International Labour Office to entrust to the Centre, as from 1 February 1973, the administration of all technical, vocational and management training fellowships included in technical co-operation projects executed by the ILO.

The training programmes in question are designed for individual fellows to take account of their specific learning goals. In most cases they are carried out in manufacturing organisations and in other training establishments, with which the Centre makes the necessary arrangements. The range of subjects covered by these external training programmes is very wide, embracing for instance, technology, training methodology, general and functional management, electronic data processing, management consultancy, hotel and catering practices, agricultural and rural mechanics and industrial rehabilitation.

Publications

The Centre's publication activities primarily take the form of the production of training materials that are suited to the training and learning conditions in developing countries and that take account of the working environment of the persons to be trained. These materials are principally trainer packages, learner packages (i.e. individual study kits) and books. In addition the Centre's publication activities include the preparation of articles, seminar reports, information materials and glossaries. The publications are produced almost exclusively under contract to financial sponsors, the main sponsors at present being the technical departments of the ILO.

Advisory services

The Centre has also established advisory services aimed at making its professional expertise in pedagogy, technology and management available on request.

Within this framework, an advisory team has been formed to assist client institutions and technical co-operation projects, in Turin or in the country concerned, with improving existing training systems and procedures.

Research

The Centre's research is of a problem-solving nature. It focuses on the effectiveness of the Centre's courses (as regards identification of needs, goal setting, curriculum design, syllabus specification, training and learning methodologies, and performance evaluation), as well as on the effectiveness of its training material and publications (in terms of product design and specification, methodologies used, evaluation methods used and validation procedures).

Facilities

Training

Classrooms; conference and seminar rooms with equipment for simultaneous interpretation; theatres; technological and audio-visual workshops and laboratories which include individual study posts, a full range of machinery, equipment and instrumentation, and didactic simulators. A computer time sharing terminal is available and in use.

Audio-visual equipment

All areas of audio-visuals are covered by the Centre's equipment, including the production of training materials in video or other audio-visual form.

Library

Number of volumes: 10,000. Number of periodicals received: 200.

Residential accommodation

440 duplex studios, each with a single bed and shower (with expansion in progress).

Indicative list of course prototypes*

Courses for managers

1. General management
2. Management of the agricultural enterprise
3. Management of co-operatives
4. Management of the insurance enterprise
5. Management and operation of a regional manpower planning office
6. Tourism management
7. Hotel management
8. Management control and information management
9. Marketing management
10. Marketing management for banks
11. Export marketing management
12. Distribution management
13. Production management
14. Production management in enterprises processing agricultural products
15. Maintenance management
16. Materials management
17. Personnel management
18. Management accounting
19. Management consultancy methodology
20. Management research methodology

Courses for trade union officials

1. Training methodology (for trade union trainers)
2. Training methodology (for trainers in rural workers' organisations)
3. Training methodology on the role and responsibilities of trade unions in national development

*As a rule courses last 12 weeks and each course provides for a large number of study visits to Italian enterprises and for a two-week study visit outside Italy.

Course for officials of employers' organisations

Methodology and organisation for officials of employers' organisations in developing countries.

Courses for training officials

1. Training methodology
2. Training media technology
3. Audio-visual aids technology
4. Management of the vocational and technical training institution
5. Management of the forestry training institution

Courses for instructors

1. Training methodology for vocational training instructors (mechanical)
2. Training methodology for vocational training instructors (electromechanical)
3. Training methodology for vocational training instructors (electrical)
4. Training methodology for vocational training instructors (electronics)
5. Training methodology for vocational training instructors (automobile systems)
6. Training methodology for vocational training instructors (construction)
7. Training methodology for vocational training instructors (commercial and clerical)
8. Training methodology for vocational training instructors (vocational trades)

Courses for technicians

1. Supervision of maintenance operations
2. Hotel organisation and administration
3. Machine design technology
4. Tool, die and gauge technology
5. Maintenance technology
6. Installation and maintenance of refrigeration and air-conditioning equipment
7. Maintenance of earth-moving and road-building equipment
8. Electronic data processing (EDP) systems installation
9. Electromechanical technology
10. Electronics technology
11. Semiconductor equipment maintenance
12. Microelectronics technology (integrated circuits)
13. Industrial electronic control systems technology

ANNEX XVII

INTER-AMERICAN RESEARCH AND DOCUMENTATION CENTRE ON VOCATIONAL TRAINING
(CINTERFOR)

ASIAN REGIONAL SKILL DEVELOPMENT PROGRAMME
(APSDEP)

INTER-AFRICAN CENTRE FOR THE DEVELOPMENT OF VOCATIONAL TRAINING
(CIADFOR)

INTER-REGIONAL TRAINING INFORMATION SYSTEM
(IRTIS)

Inter-American Research and Documentation Centre on Vocational Training (CINTERFOR)

The first official initiative towards the creation of an instrument of regional co-operation in the field of vocational training was taken during the debates at the Seventh Conference of the International Labour Organisation's American member states, held in Buenos Aires in April, 1961. The idea took shape simultaneously with the establishment of new national vocational training institutions. These new entities were interested in systematising the exchange of experiences and uniting in a common search for solutions to vocational training problems.

The Conference adopted a resolution proposing the creation of an Inter American Research and Documentation Centre on Vocational Training (Spanish acronym: CINTERFOR) and gave the ILO the mandate to create the Centre, which was subsequently installed in Montevideo, Uruguay.

Objectives:

The CINTERFOR's activities create the conditions that favour:

(a) The establishment and development of national vocational training institutions and schemes in the nations of Latin America and the Caribbean covering all economic sectors and directed to both employed and unemployed workers.

(b) The promotion and application of new methods of co-operation among vocational training institutions, especially within the context of TCDC.

(c) The establishment of effective relationships between vocational training policies, economic and social policies, and most specifically, employment policies.

(d) The promotion of effective communications between vocational training and technical education, by creating a means of passing from one system to the other and establishing a system of

occupational skills certification.

(e) The participation of workers' and employers' associations in the development of vocational training in Latin America and the Caribbean.

(f) The promotion of vocational training for women and of the programmes aimed at the less advantaged groups of society.

(g) The support of plans to integrate training policies and programmes.

(h) The promotion of increased opportunities of recurrent occupational training.

Functions:

Besides being given general objectives to achieve, the Centre was assigned the following functions:

(a) To undertake research and study projects relating to problems of human resources development in the Latin American and Caribbean countries, especially those connected with the planning, administration, organisation and evaluation of vocational training.

(b) Upon request of the national institutions, to co-operate in the preparation and implementation of their training plans and programmes and in the development of teaching materials.

(c) To facilitate the exchange of ideas and experiences by organising seminars, technical meetings and working groups on topics of common interest to the countries of Latin America and the Caribbean.

(d) To disseminate information among training institutions in the Region. The documentation service of CINTERFOR now has bibliographic resources of some 18,000 documents; it produces abstracts and annotated bibliographies which are on the one hand fed into the ILO bibliographic data base (LABORDOC) and on the other hand, distributed to all national training institutions in Latin America and the Caribbean. The CINTERFOR provides direct technical assistance to national documentation centres and services concerned with information on training matters.

(e) To promote the training of executive and technical personnel from the national institutions, by organising training courses, seminars and internships.

These functions are still current, although they may have been expanded somewhat, particularly by the diversification of the services the Centre renders the national institutions, by the more systematic promotion of TCDC, and by a more effective co-ordination of the Centre activities with those of other specialised agencies of the United Nations such as UNESCO, UNICEF, FAO, the Organisation of American States (OAS) and the research centres and university departments of various Latin American and Caribbean countries.

CINTERFOR's role in promoting TCDC activities in Latin America:

At the first glance it might appear paradoxical to point out certain results of TCDC activities when these are the very basis for CINTERFOR's action and characterises all its work. Actually, reference is made here to some of the examples of direct TCDC among the national vocational training institutions and CINTERFOR's role in these activities.

TCDC in Latin America is not a new phenomenon as regards vocational training. Beginning in the 1960's, a number of institutions ratified mutual co-operation agreements. We can cite as an example the agreements between SENA, of Colombia and the following institutions: the Ministry of Labour and Social Welfare of Panama; the Technical Institute for Training and Productivity (Spanish acronym: INTECAP) of Guatemala; the National Vocational Training Institute (Spanish acronym: INFOP) of Honduras; the Ministry of Education of the Netherlands Antilles; the Ecuadorian Vocational Training Service (Spanish acronym: SECAP); the National Institute for Educational Co-operation (Spanish acronym: INCE) of Venezuela; and the National Manpower Training Service (Spanish acronym: FOMO) of Bolivia. The scope of these accords is broad, providing for assistance in many aspects of teacher training, training of foremen and supervisors, training of the personnel who programme the training activities, training programmes based on the use of mobile units in both urban and rural areas, and the assistance to small and medium-sized enterprises.

The supplementary technical co-operation agreement signed in 1975 between FOMO of Bolivia, and the National Industrial Training Service (Spanish acronym: SENATI), of Peru, is another example. In addition to providing for the exchange of experiences, this agreement calls for SENATI to help organise a programme of on-the-job training, set up a vocational training statistical service, and carry out an internship programme for FOMO's teaching staff.

INA of Costa Rica, and INTECAP, of Guatemala, agreed in 1975 to co-operate in setting up an exchange and training programme for their technical staffs. INCE took an active part in the technical co-operation agreements between the Venezuelan government and the governments of other countries of the region. We can cite as an example the convention signed in 1975 with INTECAP of Guatemala, which provided for the exchange of experiences and information as well as assistance in the field of training methods and techniques. Similar agreements were also reached between Venezuela and Ecuador, the Dominican Republic, Brazil, Argentina, Bolivia and Honduras. It is not possible to list all the different agreements. Instead some general observations will be made.

In the first place, co-operation agreements between countries of Latin America have proliferated over the years. This is one of the positive results of policies of economic integration in the region. Furthermore, these agreements are characterised by a spirit of reciprocity and equality in the cultural, technical and scientific exchanges.

Secondly, there are various types of agreements. There are the basic agreements which do not refer specifically to particular sectors (for instance, scientific and technical co-operation agreements); the sectoral agreements (of which the classic examples are the cultural agreements); the agreements that set standards and guidelines for a specific project, an example of which is the technical and educational co-operation agreement signed in 1968 between Argentina and Bolivia; and finally, the agreements where technical co-operation is either the motive or at least one of the

principal themes. We can also cite the treaty of friendship and co-operation between Paraguay and Brazil, signed in Asuncion in December 1975. Thirdly, vocational training is privileged to be among the sectors in which the principles of technical co-operation among the countries of the region are most frequently applied.

Most of the agreements are bilateral. This demonstrates the importance of the role which CINTERFOR can play in the realm of regional co-operation. It was precisely with the purpose of systematising these TCDC activities that CINTERFOR, in 1977, held a meeting attended by the directors of the major vocational training institutions of the region. The purpose of the meeting was to study the mechanisms of inter-institutional co-operation that might be employed in setting up a regional training programme for the staff of these institutions.

Asian Regional Skill Development Programme

APSDEP

Objectives:

The Asian Regional Skill Development Programme (APSDEP) is an association of national training bodies working within the general framework of the International Labour Organisation. APSDEP obtains its financial resources from member states, UNDP and the ILO.

APSDEP's general objective is to contribute to the development of training policies, institutions and programmes at all levels of responsibility and in all fields of economic activity in the countries of Asia and the Pacific. Its principal means of action are to promote co-operation, work sharing and exchange of experience between national agencies concerned with training and to promote TCDC arrangements between them.

In more specific terms APSDEP aims to fill:

(a) The need for better information on training institutions which can be used for extended technical co-operation between the countries of the Region and, in particular, for the training of instructors and other staff directly engaged within the training delivery systems.

(b) The need for better information on the more general socio-economic and pedagogic aspects of training; and

(c) The need for an organised exchange of training materials between the countries of the Region and for joint work in developing new such materials in various occupational areas.

Fields of Activity:

Five technical areas have been singled out as being in priority need of joint development work within the APSDEP framework. These are:

(a) Training of craftsmen (including those engaged in small-scale manufacturing, and other persons in non-farm occupations in rural areas)
APSDEP has been assigned the task to evaluate and assess information available on policies, programmes and experience in Asian and Pacific countries and to undertake studies to fill essential information gaps, with special reference to informal learning processes through which traditional skills are transferred, new skills obtained or old ones modified.

(b) Apprenticeship
APSDEP has recently (May 1981) completed a study of existing legislative provisions, policies and programmes of apprenticeship and other in-plant training. The study assesses the effectiveness of such legislation and constraints in its application in different economic and social conditions. Special attention is given to informal apprenticeship practices in smaller enterprises and the informal sectors of the economy, which are little known and generally are not covered by legislative provisions. The study and complementary research suggest ways of making existing apprenticeship arrangements more effective and, in particular, explore possibilities for and the desirability of extending their application to broader groups of population and a wider range of occupations.

(c) Training of foremen and other shop-level managers
APSDEP is undertaking an evaluative study of foreman training programmes in operation in the countries of the region. The study will suggest lines of development in this field, and map out areas in which groups of countries, in the context of TCDC, could work together for more adequate programming of training of supervisory staff and for joint training of training staff within the region.

(d) Planning, programming and evaluating training
Considerable work had already been done by the ILO in this field both as a general research activity and in the framework of technical co-operation with developing countries. APSDEP is undertaking an evaluative study of the materials produced and experience gained in such activities with an emphasis on the applicability of methods and approaches to conditions existing in Asian and Pacific countries.

(e) Standard setting, trade testing and certification
APSDEP is studying the experience gained in this field, with the aim to suggest alternative approaches, to explore possibilities for work sharing in standard setting and in developing examination criteria, and to harmonize training objectives through the adoption by several countries of similar standards.

Inter-African Centre for the Development of Vocational Training (CIADFOR)

Examples provided earlier showed that over the past few years, there were several activities in vocational training which were carried out through the collaboration of African countries. There can be no doubt, however, that it is with the establishment of the Inter-African Centre for the Development of Vocational Training that TCDC started a notable development in Africa.

Shortly before the establishment of the CIADFOR, the ILO held its Fifth African Regional Conference in Abidjan during which one of the main issues discussed was education for development. The discussions and interventions made by the delegates stressed the urgency and the extreme importance given to the development of vocational training and the need to mobilize all African resources in this respect. CIADFOR was established precisely because of this awareness on the part of several African countries which were willing to co-ordinate their vocational training efforts in such a way as to enable each country to benefit from the experience accumulated by neighbouring countries. The following countries are now members of the CIADFOR: Benin, Burundi, Cameroon, Central African Republic, Chad, Congo, Ivory Coast, Gabon, Guinea, Upper Volta, Madagascar, Mali, Mauritius, Mauritania, Niger, Rwanda, Senegal, Togo and Zaire. Portuguese-speaking countries in Africa, i.e. Angola, Mozambique, Cape Verde, Sao Tomé and Principe, and Guinea Bissau are planning to join CIADFOR.

The criteria set forth by CIADFOR for the selection of its activities are worth mentioning. The activities and the work carried out by CIADFOR must correspond to the needs felt by several member States. In addition, CIADFOR's programme concentrates on activities that permit an economy of means and produce results which are qualitatively superior to those that could be achieved by individual member States through their own efforts.

Over the past four years of practice of TCDC in vocational training, the activities of CIADFOR have achieved a number of most positive results. Under the broad theme of vocational training policies and programmes, the relationships between training and employment were explored in the Ivory Coast, Congo, Niger, Senegal and Zaire. To obtain a better knowledge of the existing training institutions in the different member countries, the CIADFOR carried out a survey on the institutional structures of vocational training. This survey, executed exclusively by Africans, led to the publication by CIADFOR of a Directory of Institutional Structures of Vocational Training. This document covers 16 African countries and contains information on the major departments, services or organizations responsible for vocational training at the national level. This information covers such aspects as the legal framework, structure, objectives, scope, financial resources, means of action of training and development projects envisaged.

Employers' and workers' organizations in member countries have taken part in several CIADFOR activities. In particular, two studies were made, the first with the participation of employers' organizations in the Ivory Coast, Cameroon, Senegal and Zaire, and the second with the participation of workers' organizations in Gabon, Senegal, Togo and Zaire. These studies examined the mechanisms through which these organizations are associated with and participate in training policy formulation, implementation and evaluation.

Work done in the field of training methodology led to the development of training materials bearing the general title of "Basic Collection CIADFOR" (CBC). The first phase of the work was completed in 1980 with the publication of a normative document providing guidelines for the preparation and exchange

of training materials for vocational training. Since then, basic collections of training materials have been prepared for the following trades: auto-mechanics (Gabon), building trades (Ivory Coast), carpentry (Ivory Coast), and diesel engine mechanics (Gabon), electrician, motor vehicle (Gabon). At present, further CBC are under preparation covering mechanical maintenance (Zaire) and metal construction (Senegal).

The CIADFOR produces a bulletin and so far some 34 issues have been published. This bulletin has become one of CIADFOR's foremost means of disseminating the results and achievements of its activities carried out by African specialists on a TCDC basis. It now has a circulation of 1,000 copies. A key role is also played by the Documentation Centre of CIADFOR which carries out important and varied roles and functions. The Documentation Centre is, for instance, responsible for gathering the documentation required for all activities included in the CIADFOR's programme. It also shares the management organization and development of the documentation resources such as studies and research papers collected. Besides this, the Documentation Centre maintains regular exchange with CINTERFOR, APSDEP and other organizations specializing in vocational training.

To summarize the experience of African countries with regard to TCDC, it should be emphasized that TCDC has been practised for some years. In the first place, the TCDC activities were carried out on a bilateral basis and generally, independently one from the other. Since 1978, the TCDC activities have had the benefit of a specific organizational framework, CIADFOR, which has enabled a substantial increase and diversification of TCDC activities in the field of vocational training. This trend is bound to be further reinforced in the future, due to the scope that vocational training offers to TCDC.

Inter-Regional Training Information System (IRTIS)

While TCDC carried out through CINTERFOR, CIADFOR and APSDEP was geared to deal with vocational training problems purely on a regional basis, these institutions realized that they were all pursuing the same objective and therefore that there was ample justification for undertaking TCDC activities among the various regions. CINTERFOR is the regional institution with the longest experience in TCDC since it was established in 1964. It was also the first to take an initiative on TCDC co-operation between different continents. CINTERFOR organized a technical meeting on vocational training systems in Africa, Latin America and the Caribbean. This meeting which tock place in Brasilia, and was sponsored by the Brasilian government in association with UNDP and the ILO, brought together heads of vocational training institutions and programmes belonging to some 20 nations. This gave the African delegates an opportunity to examine TCDC mechanisms developed and used in Latin America and the Caribbean. This event also made it possible to lay the basis of an interregional TCDC. It led the heads of APSDEP, CIADFOR, CINTERFOR, the ILO and the Turin Centre to decide on the joint development of an Inter-Regional Training Information System (IRTIS).

The idea was launched on the basis of the observation of areas of common preoccupation with regard to information of vocational training in all countries irrespective of the region to which each belongs. T need for information on training was classified into three main c Firstly, every country wanted to arrive at a better knowledge of exists in terms of training in other countries. Secondly, a country wants to know what experiments have been carried out by other countries with which it has some common interest whether because it belongs to the same continent, has the same language, takes part in an economic group or regional association, etc. Thirdly, countries need access to information on studies, research projects, solutions pertaining to specific training problems irrespective of the country in which they have been effected. Each regional institution is aiming, through its TCDC activities, to fill the information needs on vocational training of the first and second categories. These needs of the third category could only be met through an inter-regional technical co-operation effort. This is precisely why IRTIS was set up.

IRTIS's goal is to provide access for those concerned with vocational training questions and information services to experiments, pertinent legislation, training materials, training methods, training programmes and training institutions which could directly help them in their work.

Four groups of potential users of IRTIS services were identified. The first comprises government officials, members of parliament, civil service heads as well as leaders of national employers' and workers' organizations. The second group includes persons in positions of senior responsibility, such as heads of training institutions, managers of industrial undertakings, personnel managers, heads of training departments and representatives of trade unions within enterprises and civil servants responsible for the application and enforcement of training legislation. The third group consists of instructors and trainers, vocational guidance personnel as well as technicians with training responsibilities. The fourth group consists of planners, staff attached to research institutions, scholars, technical personnel of information centres as well as documentalists.

The information requirements of these groups are obviously diverse and vary depending upon the particular training situation. This has led IRTIS to compile a list of subject matter, services and information products responding to these requirements such as a data base on training institutions, on training for trainers' programmes, training materials, legislation on training, financing of training etc. The approach followed for each subject consists of developing common tools for information processing, defining common standards, procedures and guidelines. The development work is being shared among the partners in the venture, before becoming the object of an interregional consultation with a view to the adoption of common norms and standards.

The system works on a decentralized basis, as each region, and in due course, each member State, is responsible for the processing of vocational training information in its respective geographical area according to agreed standards. IRTIS is an ambitious and long-term undertaking. It is still in a developmental stage, although some concrete results have already been achieved, in particular with regard to vocational training materials.

The work on IRTIS emphasizes the close links which exist between TCDC at the interregional level and TCDC on the regional level. These two forms of TCDC are actually complementary to each other, both in terms of objectives pursued and operational approach.