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Santiago, Chile, 14 to 25 March 1966

MANPOWER PLANNING AND VOCATIONAL TRAINING

Submitted by the International Labour Office (ILO)



LATIN AMERICAN SYMPOSIUM ON  
INDUSTRIAL DEVELOPMENT

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Item IV. Technical Assistance for  
Industrial Development.

MANPOWER PLANNING AND VOCATIONAL TRAINING

Paper presented by the  
International Labour Organisation.

Contents

1. Some manpower problems associated with the  
process of industrialisation.
  - Industrialisation and the fuller employment  
of human resources
  - Requirements of skilled manpower for  
industrialisation
  - The general education base
  - Utilisation of trained personnel
2. Outline of I.L.O. programme of technical  
co-operation.
  - A. Manpower planning and organisation
  - B. Vocational training



1. Some manpower problems associated with the process of industrialisation.

The manpower problems facing those aiming at accelerated industrial development are frequently divided into two broad groups.

The first group comprises problems related to the skilled human resources necessary to put the process of industrialisation into effect. How far do the existing supplies of skilled manpower meet or fail to meet even the present requirements of industry? Have deficiencies of manpower - both in quantity and quality - already hampered effective industrial development where other factors have been favourable? What estimates can be made of the additional skilled manpower which will be needed to meet future requirements in industry? What are the prospects that the currently planned arrangements for skill formation - covering general education, technical and professional education and vocational training - will produce the required manpower when it is needed, and that such manpower, once trained, will in fact make itself available for utilisation in national industrial development? In almost all countries - industrialised as well as developing - the answers to these questions show that a "manpower gap" already exists, and that, if national aspirations for the future are realised, the gap will widen, unless specific and carefully calculated measures are taken.

This first group of problems poses the following type of question on the measures to be taken to deal with the situation: how far must shortages of manpower be realistically accepted as a constraint on planning, leading for instance to a postponement of target dates? What must be done to improve the output of the educational and vocational training machinery, and how can investment to this end be fitted into national economic programmes? What sort of measures are likely to attract more talent into the fields of training necessary for industry, into carrying through with this training to completion, and applying it to the growing benefit of industry?

The second group of problems relates to ways in which industrialisation can help the great mass of workers - unskilled as well as skilled - to obtain productive employment and, particularly in developing countries, to ways in which industry can make fuller use of the plentiful resource factor of unskilled manpower. Questions posed in this connection are ones such as the following: What is the volume of under-utilised manpower and how far can industrialisation harness it to production? If economic targets include a specified number of jobs to be created, what contribution can industrialisation

make towards reaching this number? What possibilities exist of raising this contribution by using labour-intensive techniques? Can employment be increased, without the injection of fresh capital, through a fuller utilisation of existing industrial equipment?

The two groups of problems are not mutually exclusive; in fact they are closely interwoven. Nevertheless the division is a convenient one for a brief analysis of the situation as it appears in a number of Latin American countries. The second group of problems will be looked at first.

### Industrialisation and the fuller employment of human resources

There can be no doubt of the need, taking Latin America as a whole, both for a higher rate of economic growth and for a fuller utilisation of the rapidly increasing labour force. It would clearly be advantageous if ways could be found of killing two birds with one stone and making the latter purpose serve the former.

From 1945 to 1960 the pace of economic growth slackened as indicated in the following table:

Latin America: Average annual rates of growth  
(per cent.)

<u>Period</u>	<u>Gross Domestic Product</u>	<u>Population</u>	<u>GDP Per Capita</u>
1945-1960	5.8	2.3	3.3
1950-1955	4.8	2.7	2.0
1955-1960	4.0	2.9	1.1

Source: E.C.L.A., The Economic Development of Latin America in the Post-War Period, E/CN.12/659, 1963, Table 5.

Although there has since been a recovery in some countries there is doubt whether the improved rates will be kept up.

At the same time the labour force has in most countries failed to keep step with the expanding population, not only because of the changing age structure of the population but also because of declining labour force participation rates. Moreover the increases in the labour force are not being absorbed to a sufficient extent in the sectors which could contribute most to economic growth. A recent study by E.C.L.A.<sup>1</sup> concluded that the absorption of the more dynamic sectors -

1/ E.C.L.A. La Mano de Obra y el Desarrollo economico de America Latina en los ultimos años, E/CN.12/L.1. 1964.

mining, manufacturing (excluding artisan production) construction, electricity and water supply services, etc. - for Latin America as a whole shrank slightly from 27 per cent. in 1950/55 to 25 per cent. in 1955/62.

Factory employment absorbed only 9 per cent. of the growth of the labour force between 1950 and 1960 and less thereafter, showing a decrease in its share of the total labour force. To the extent that this decrease reflects improved productivity it may be welcomed. But the fact needs to be faced that, under present circumstances, factory employment cannot be looked to as a major source of new jobs. Moreover in a country like Mexico, which shows the highest rate of absorption into factory employment, the indications are that the increase will not continue in view of current modernisation programmes.

An increasing number of countries in the world are accepting that each government should pursue "an active policy designed to promote full, productive and freely chosen employment".<sup>1</sup> In the developing countries the question arises whether industrial development cannot contribute more to achieving this goal. This concern is expressed in the Employment Policy Recommendation, 1964, as follows:

"Promotion of Industrial Employment"

24. (1) Members should have regard to the paramount need for the establishment of industries, public or private, which are based on available raw materials and power, which correspond to the changing pattern of demand in domestic and foreign markets and which use modern techniques and appropriate research, in order to create additional employment opportunities on a long-term basis.

(2) Members should make every effort to reach a stage of industrial development which ensures, within the framework of a balanced economy, the maximum economic production of finished products, utilising local manpower.

(3) Particular attention should be given to measures promoting efficient and low-cost production, diversification of the economy and balanced regional economic development.

25. Besides promoting modern industrial development, Members should, subject to technical requirements, explore the possibility of expanding employment by -

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<sup>1/</sup> These are the words used in Article I (1) of the Employment Policy Convention, 1964.

- (a) producing, or promoting the production of, more goods and services requiring much labour;
- (b) promoting more labour-intensive techniques, in circumstances where these will make for more efficient utilisation of available resources.

26. Measures should be taken -

- (a) to promote fuller utilisation of existing industrial capacity to the extent compatible with the requirements of domestic and export markets, for instance by more extensive introduction of multiple shifts, with due regard to the provision of amenities for workers on night shift and to the need for training a sufficient number of key personnel to permit efficient operation of multiple shifts;
- (b) to create handicrafts and small-scale industries and to assist them to adapt themselves to technological advances and changes in market conditions so that they will be able to provide increasing employment without becoming dependent on such protective measures or special privileges as would impede economic growth; to this end the development of co-operatives should be encouraged and efforts should be made to establish a complementary relationship between small-scale and large-scale industry and to develop new outlets for the products of industry."

While the principle set out in paragraph 25 above of promoting production which requires much labour and promoting labour-intensive techniques may be readily acceptable, there are practical difficulties in the way of its application. In the past the efficiency of much of Latin American industry has been hampered by wasteful use of manpower, and the trend has been towards forms of modernisation involving its more sparing use. Moreover the only model available to follow in the modernisation process is often that of regions which adopt capital-intensive techniques for reasons which are perfectly valid in those areas but which do not necessarily hold good in the less-developed countries of Latin America.

As was pointed out by the Conference on the Application of Science and Technology in Latin America, September 1965, one need is for the use of "intermediate technologies" operating with a higher volume of employment without sacrificing the object of productivity. There has however been little conclusive experimentation with "intermediate technologies" in the field of manufacturing industry.



It is clear that, where alternative techniques exist for carrying out an industrial project, the employment creating effects of each alternative should be one of the criteria used in selection.<sup>1</sup> Moreover, nothing should be done which artificially tips the balance in favour of capital intensive production methods. Care should be taken to identify any measures which may artificially distort the real costs of capital and labour - for instance fiscal or foreign exchange measures which artificially cheapen the cost of imported capital equipment, or measures which artificially raise the cost of labour.

#### Requirements of skilled manpower for industrialisation

While less than ten years ago, the opinion was expressed that scarcity of skilled manpower was not then so serious an obstacle to economic development in Latin America as the scarcity of other factors, in more recent years most observers have concluded that the shortage of engineers, technicians and skilled workers has become a major obstacle to efficient industrial development.

To take the specific example of Venezuela (which nevertheless had the second highest rate of growth in factory employment in Latin America), a Committee evaluating the results of the plan expressed the opinion that "the chief bottleneck was the shortage of technical and administrative personnel particularly at the intermediate level and of skilled workers for new industrial activities", and urged the need for a "large scale effort in the field of education and training far exceeding that provided for in the Plan"<sup>2</sup>.

The subject has been publicised in greater detail for personnel at the university level than at other educational levels and, within this group, for engineers more than for other occupations with which industry was concerned.

1/ See "Production Techniques and Employment Creation", in International Labour Review, Vol. LXXVII, No. 2, August 1958.

2/ Comité de los Nueve. Alianza para el Progreso. Evaluación del Plan de la Nación 1963-66 de Venezuela (roneoed) 1963.

In Argentina the output of engineering graduates from the universities was found to be adequate<sup>1</sup> but there are difficulties associated with the high rate of emigration (see below) and there is a shortage of engineers in industry owing to the preference of a large number of graduates for private practice. It is also reported that there are deficiencies in quality due to out-of-date equipment and poorly remunerated teaching staff at the universities<sup>2</sup>. In Chile, while there is no suggestion that the output of engineering graduates has been inadequate to meet past requirements, the growth in output of new engineers has levelled off to the point where numbers will be inadequate to meet the new demands arising from development<sup>3</sup>. In Peru there is a growing interest in engineering studies at the universities but it is not matched by a corresponding increase in managers capable of putting the engineers to their full use.<sup>4</sup>

In Ecuador the development plan reports a lack of professionals in technical fields. In Mexico shortages are particularly apparent in the less-advanced regions and well-trained engineering graduates can be selective as to area and type of employment which they will accept.<sup>5</sup>

1/ Zalduendo, Almada and Sanjurjo. Informe preliminar sobre la Oferta de Mano de Obra Especializada en la Republica Argentina, Institute Torcuato di Tella, Buenos Aires, 1961.

2/ Morris A. Horowitz, High Level Manpower in the Economic Development of Argentina, in Harbison and Myers, Manpower and Education, Country Studies in Economic Development, New York, 1965.

3/ Rudolph C. Blitz, The Role of High-Level Manpower in the Economic Development of Chile, in Harbison and Myers, op. cit.

4/ Whyte and Flores, High Level Manpower in Peru, in Harbison and Myers, op. cit.

5/ C.N. Myers, Education and National Development in Mexico, Princeton, 1965.

In Venezuela, aside from the supply and demand situation for engineers in general, it was reported in 1962 that there was a specific shortage of petroleum engineers, although these were in particularly great demand by national industry; only 2 per cent. of registered Venezuelan engineers were petroleum engineers and only around 100 of these were available to fill about 600 posts.<sup>1</sup>

If existing arrangements for the output of engineers barely satisfy current demands it will clearly be essential to seek ways of raising and improving the output to meet future requirements. The demands of industrial projects will not only be additional to the present slowly growing needs; because of the higher technicity of new industries they are likely to call for a higher proportion of engineers.

A less widely appreciated and less generally documented shortage is that of technical personnel at the intermediate or sub-professional level. Part of the strength and flexibility of industries in the long-industrialised countries is attributed to the solid body of sub-professional technicians with some 13 or 14 years of education, a good understanding of mathematics, design and scientific principles and of the practical application of these principles in the workshop. Engineering technicians of this kind, capable of carrying out fairly advanced technical work under the supervision of the professional engineer, seem to be comparatively scarce in a number of Latin American countries. In Mexico for instance, it was found in 1959 that for every five professional engineers there was only one sub-professional engineer<sup>2</sup>; a reverse ratio would in fact be more logical. In Chile the Corporación de Fomento de la Producción undertook a study of the country's needs for technicians from which it appeared that the ratio of engineers to technicians is approximately 1 : 1.65.

1/ Anibal R. Martinez, Nuestro Petroleo, Geneva, 1963.

2/ Banco de Mexico, Departamento de Investigaciones Industriales, El Empleo de Personal Técnico en la Industria de Transformación, Mexico, 1959.

In many other regions of the World too the position of technicians is unsatisfactory and ill-defined; their normal paths of education and training are not standardised; their status and remuneration are often indistinct, tending in some cases to be fixed by analogy with skilled workers and at other times in relation to those of professional engineers. But the absence of a clearly identifiable group of technicians with specific and important functions to perform in industry appears to be particularly marked in Latin America. Observers speak of a yawning gap between the skilled worker and the professional engineer; and the career objective of young people tends either to stop short at the level of skilled worker or to look to a university course leading to a degree. This is perhaps less true of Argentina than of some other countries, but even there the number of technical school graduates with five or more years of training was found in 1960 to be lower than in 1955.

Much of what has been said of engineers and engineering technicians broadly applies mutatis mutandis to other professional and sub-professional occupations having essential functions to perform in industrial development. The demand for scientists is not yet high, but if it increases, as it should, then there will be difficulty in meeting it. There is a reported shortage of well-qualified accountants in industry and of managerial specialists in many countries. Observers from outside Latin America comment on weaknesses at the intermediate level, particularly in regard to administration.

#### The general educational base

One reason for the limited output from the universities of graduates in the more technical subjects is the limited pool of persons suitable for entry into specialised education or training. In many countries before much can be done to expand education and training for intermediate or high level occupations, it has been recognised as essential to widen the whole educational base. A feature common to a number of countries is the high rate of drop-out both at the successive points of transition from one stage of education to the other and within each stage. To take Chile as an illustration: of a group of 100 potential starters in education, it has been estimated that 9 never attend school and over 30 abandon primary school after two years; at the time of entry into secondary education some 20 continue, but only 3 finish the six-year course; of the original starters, only 1.2 per cent. enter the university and only 0.7 per cent. complete university education.

With regard to the requirements of industry, it is generally concluded that most importance should be attached to expansion of the secondary stage and particularly to measures to encourage more pupils to complete the full six-year course, since it is the final output at this stage which feeds both entry to the university and entry on training for a wide range of intermediate-level occupations. This clearly cannot be done without some widening of the primary base but resources should not be devoted to general expansion of primary education which, in terms of economic benefits, would be better applied to secondary education.

Questions of priorities in allocation of finance to educational purposes are outside the scope of this paper, but the point should be made that decision on them are properly taken as an integral part of the national development plan, and that the estimated manpower requirements of the economy are one of the several criteria to be applied in arriving at a decision. All proposals for the expansion of education call for fresh requirements of teaching staff which in turn have to be provided for in the plan.

Even within the limits of given financial resources, changes may be desirable in the content of education, such as more emphasis on mathematics and science subjects or instruction more closely related to modern economic life. The criticism has been made that the curriculum of many Latin American secondary schools has been oriented too much towards university entry; and it has been suggested that more attention should be given to the needs of those who will not be going on to the universities.

The volume and quality of education also have a bearing on the supply of skilled workers for industry and it has been advocated in some quarters that the syllabus of primary schools should be brought more closely into relation with the needs of industry. However, the prime necessity in relation to industrial development is that there should be a sufficiently large pool of pupils who have reached an educational standard which will enable them to absorb the increasing theoretical element in vocational training for occupations in industry.

Given this pool of applicants it is the suitability, volume and quality of the vocational training given which will determine the adequacy of skilled workers. Vocational training, as organised by the type of national vocational training authority now operating in several of the leading countries in Latin America, is better suited than the systems in some other regions of the world in ensuring that the training given corresponds to the real needs of industry. Even so, the system requires that there shall be some forward estimation of the occupational needs which will arise with economic development, a task which calls for the help of the manpower planner.

In the case of the setting up of an entirely new industry or the introduction of highly specialised employment in which there is sufficient volume to warrant the establishment of regular training courses workers are sometimes sent for on the job training in an established plant in a foreign country. In this connection the Conference on the Application of Science and Technology in Latin America pointed out the advantages of royalty agreements with foreign companies, which not only can provide training but also continuing technical advice.

#### Utilisation of trained personnel

In addition to the wastage of those who fail to complete training there is the wastage of those who fail to enter the occupation for which they have been trained, of those who do not apply their training in employment where it would be of the greatest use to the economy, and of those who emigrate. Mention has already been made of the shortage of engineers in Argentinian industry because of the rival attraction of private practice; this seems to be a reflection of the somewhat lower prestige attached there as in a number of other Latin American countries to employment in industry, a situation which is at variance with that in most countries with a longer industrial history where the engineer employed in industry enjoys high status.

Status may be a reflection partly of out-of-date social values but it is also a reflection of the remuneration attaching to particular types of employment. Until the salaries of technically qualified persons in industry bear a better relationship to their real economic value to the community these persons are not likely to enjoy the status to which they are entitled. The same holds good in respect of the technician and skilled worker.

A recent study of the loss by emigration of professionals in Argentina showed that the number of engineers emigrating to the United States alone constituted a serious drain on the national pool (an average gross emigration of around 90 a year over the last ten years)<sup>1)</sup>. A certain fluidity of movement both within Latin America and outside is no doubt welcome, and a certain amount of emigration, temporary or permanent, to countries with more advanced technologies and equipment and higher salaries is probably inevitable, but a loss similar to that reported from Argentina cannot easily be borne.

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1) See E. Oteiza, "Emigration of Engineers from Argentina: A case of Latin America 'Brain Drain' ". In International Labour Review Vol. 92, No.6, Dec. 1965.

Again here, incentives in the way of fuller recognition both in terms of remuneration and status of the trained man's value could contribute towards reducing the brain drain. Economic growth and stability could clearly also play a part.

It should also be possible to some degree to correct the disaffection of young people for industrial employment by giving them, while they are still at school, more information about the many satisfying forms of employment which will be open to them in industry as it progresses. Industries can themselves take the initiative in doing something to improve the knowledge and interest of young people.

In a related connection, an interesting recommendation was made by the Conference on the Application of Science and Technology in Latin America to the effect that the training of engineers and technologists should include some training on economic development. It is suggested that this would show them where they fitted in and to give them a sense of mission.

A further incentive effect might be provided if it were manifestly becoming more possible for technically-qualified personnel to rise by their own efforts to the highest posts in management. There are still industrial establishments in the private sector in which this is not yet possible.

In almost all the connections mentioned above it is necessary for there to be closer contact and understanding between the industrial employers facing immediate practical manpower problems in the factory and the economic planner at the centre. A part in maintaining this channel of communication can be played by the employment service where it is trained to keep itself fully informed of employment problems at the local level and to feed information on them, and to make suggestions for their solution to the central planning organisation.

## 2. Outline of I.L.O. programme of technical cooperation

### A. Manpower Planning and Organisation

It is generally accepted in Latin America that some degree of central manpower planning is now required, in order to allow plans to be made for a better use of currently unemployed and under-employed manpower and to determine the measures in matters of education, training and incentives policy, which may be necessary if trained manpower is to be available to implement national development plans. However, the extent to which manpower planning needs to combine a wide variety of considerations and a broad spectrum of measures is perhaps not yet everywhere sufficiently appreciated, with the result that administratively co-ordinated human resources development programmes are slow in coming into action.

During the past five years the nature and scope of the I.L.O. programme covering manpower and employment problems in Latin America has been largely governed by the resolutions adopted by the Seventh Conference of American States Members of the I.L.O. (Buenos Aires, April 1961). These instruments deal with specific activities such as the creation of employment, the adaptation of vocational training programmes to the requirements of the economy, technical assistance in the field of manpower planning and organisation, the collection and dissemination of information regarding the experiences of various countries in making fuller use of manpower resources, information concerning methods and techniques used in manpower assessment including the forecast of future manpower availabilities and requirements, the organisation of training courses related to these activities.

In addition to the research and other activities carried out by the I.L.O. Headquarters in relation with the above recommendations, a programme of technical assistance has been developed in recent years. An important aspect of this programme is that it should often be co-ordinated with activities carried out by other international organisations in related fields. The I.L.O. collaborates, for example, with UNESCO in the field of educational planning, and with the Economic Commission for Latin-America as well as other organisations, in particular the Organisation of American States, in connection with economic development planning activities.

Experience has shown that, when planning technical assistance projects, more recognition should be given to the different stages reached by the countries concerned in this activity. Technical co-operation in this field consists essentially in: advising on the manpower implications of decisions taken or to be taken in the process of development planning; drawing attention of the national authorities to the difficulties which may be expected in meeting manpower requirements, and suggesting ways of overcoming them; suggesting alternative solutions allowing for more employment creation if necessary; and assessing any possible costs of additional employment creation.

Manpower assessment and planning. There has been an increasing number of projects dealing with manpower planning as a whole, aiming at the adoption of a co-ordinated approach to the estimation of present and future needs for professional, technical and skilled workers, the study of general employment market conditions, and the development of suitable machinery and institutions for the improvement of skills and the utilisation of human resources.



Marked emphasis is being put on the assessment of the present employment market situation and the establishment of short and medium-term forecasts, since in Latin America attention was given in the past mostly to long-term forecasts in economic planning.

I.L.O. experts have assisted in numerous enquiries concerning the employment levels and the occupational composition of private and public enterprises, the present deficiencies in the education and training of workers at different skill levels, and the existence of jobs which cannot be filled owing to shortages of workers qualified for them. The results have been used mostly for the preparation and organisation of training programmes either within industry or in special centres.

Furthermore, the I.L.O. is assisting in bringing about a closer integration of manpower planning with general economic planning through better co-ordination between central planning authorities and labour administration.

Training activities for national staff dealing with manpower assessment, planning and organisation in the countries concerned have been in line with the resolutions of Buenos Aires Conference. In June-July 1963, a joint ECLA/ILO manpower planning course was held in Santiago and attended by 21 participants, mainly from planning bodies, Ministries of Labour and vocational-training institutions. In March 1965, a manpower administration course was held in Lima and attended by 23 participants chiefly from Ministries of Labour.

Employment Service Organisation. The establishment and improvement of public employment services have continued to be an important element in the I.L.O. technical assistance programme. A regional employment service training course will be held in 1966. Furthermore, fellowships will be made available for participants from Latin American countries to attend a course in Lima for six to eight weeks which will include practical work in the employment service of Peru. The training activities of the manpower administration course referred to above, and the employment service course are regarded as part of the preliminary work of the Latin American Centre for Labour Administration which is being set up in Lima.

Occupational Classification. In the field of occupational classification, a representative of the Inter-American Statistical Institute shall be participating in the work currently being done in Geneva on the revision of the International Standard Classification of Occupations. The purpose of this work is to bring ISCO up-to-date and in particular, to advise on such modifications of the occupational groups as may appear desirable.

## B. Vocational Training

The recognition of the role of vocational training for economic development as well as the importance of the efforts made in this field in different countries of Latin America, led the I.L.O. in 1961 to revise the principles concerning vocational training in the region which it had formulated in 1946. The VIIth Conference of American States Members of the I.L.O. (Buenos Aires, 1961) adopted inter alia a resolution on vocational training, which was based on the experience gained in this field and on the changing needs of the social and economic development of the countries in the region. General principles of action are set forth in this instrument concerning the major general problems of training as well as those which affect each level of skill in industry and in other branches of the economy, taking into account their relationship with educational problems, the manpower and employment situation, the stage of economic development and the demographic trends of the countries concerned. I.L.O. action on vocational training in Latin America is based on those guiding principles, without prejudice to the provisions of the comprehensive Recommendation on vocational training, No. 117, which the I.L.O. General Conference adopted a year later, in 1962.

Operational activities. The technical co-operation provided by the I.L.O. relating to the training of workers and other technical personnel at lower and intermediate levels for employment in urban and rural areas in Latin American countries began in 1952 with a symposium on the organisation and administration of training which was organised in Brazil (Sao Paulo) for personnel at senior training management level in co-operation with Brazil's Serviço Nacional de Aprendizagem Industrial (SENAI). Since then, the I.L.O. has been responsible for the implementation of technical co-operation projects relating to various aspects of training in a majority of Latin American countries, some of short duration and of limited scope, others large and long-term. The projects have related to general aspects of the organisation of training down to assistance in the administration of courses for individual categories of skilled workers. The wide range of action by this programme carried out in some twelve countries at present, represents to date, together with management development and productivity, I.L.O.'s most extensive contribution to the development of human resources in Latin America and it would be impossible to set out in this short paper the full significance of I.L.O. action in this field in the region. This paper has therefore been limited to indicating the main directions of I.L.O. technical co-operation relating to training for industrial development.

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1/ This field of action is covered in a separate paper submitted by the I.L.O. to the Conference.

The first has been, and still is, to assist the various countries in the establishment and development of largely autonomous vocational training services responsible at the national levels for the different types of training schemes. In all cases the aim is to set up types of institutions which would be responsible for supplying the different categories of skilled personnel required by the growing Latin American industry, in other words to create the instrument for implementing a vocational training programme. Action has been based on the principle that training is of joint interest to the state and to industry, employers and workers, and provision has been made for an active participation of the parties concerned in the management and, in a number of countries, in the financing of the systems.

Over the last fifteen years, the I.L.O. has been associated with the creation or development of national vocational training systems including Argentina (CONET), Brazil (SENAI and SENAC), Chile (CENFIS), Colombia (SENA), Mexico (ARMO), Peru (SENATI), Uruguay (University of Labour, UTU), Venezuela (INCE).

Gradually these systems are becoming more and more diversified to provide for the various levels of skills as well as for the special needs of selected industrial sectors. In-plant training schemes and accelerated training of adults, including up-grading training of workers, are being developed alongside with special systems of apprenticeship for young workers. Increased demand for skilled workers for industry has led to the setting up of special schemes for selected industrial sectors, such as textiles, graphic arts and foundry in Colombia; in most countries, training is organised for the major industrial trades, particularly engineering.

Building up efficient apprenticeship systems and other predominantly in-plant training systems in which industry should fully co-operate is a long-term undertaking. I.L.O. assistance has therefore often been phased over relatively long periods of time. It pertains to the whole spectrum of functions included in the establishment of such services : working out the necessary legal basis, establishing basic administrative machinery, planning centres and courses for basic training, assisting in formulating curricula and standards of practical training and examinations, helping in organising liaison between the training centres and the undertakings, and so forth.

At the outset, most of these services have been predominantly geared towards meeting requirements of middle-sized and larger undertakings in industrial centres. Efforts are now made to attract smaller undertakings also to participate in the training schemes, to offer facilities for basic and further training of their workers and to help in organising efficient in-plant

training, even for the smaller production units. The services are, at the same time, broadening the scope of their action to reach not only the main industrial centres but also smaller towns in remoter areas, where industrial activities are carried out and development may be anticipated.

Still another line of action is to try and link work done in the fields of management development and productivity development on the one hand and vocational training on the other, as emphasis is placed on training of employed workers. The motives for such a policy are obvious. Sound management includes the systematic and gradual development of skilled workers and competent supervision - by means of in-plant training and policies of promotion from the shop floor. The general shortage in many Latin American countries of properly trained and experienced skilled workers and other intermediate technical staff has made it particularly important to convey to management knowledge of appropriate principles and practices in this matter and to associate the management development programmes and vocational training services in the implementation of an integrated approach to manpower development in the plants, by which many elements of vocational training of workers, supervisors and technicians, as well as the development of middle management are combined.

Finally I.L.O. action, less directly connected with industrial development but possibly, in the long run, of equal importance to it, is directed towards the rural population, particularly the peoples on the High Plateau of the Andes. Teaching basic modern technology, skills and work habits to people in rural and backward areas, may have an effect in three ways. Firstly, some of these people will be in a position to use improved methods in their traditional work. Secondly, others may acquire the skills necessary for engaging in new types of activity in their home areas, thus contributing to a much-needed diversification of economic activity and decentralisation of production. Thirdly, it may assist those, who leave the rural areas to take up work in the towns, to adjust to the standards and methods of work in factories and other work places.

Remarkable progress has been made in Latin America over the last ten years, and certain problems have come more clearly to light as a result of the growth of the national training activities in certain countries as well as of the increased recognition of the need for training activities to be closely geared with manpower requirements for economic development. As already indicated, the diversification of the training systems - taking into account the variety of the categories of workers concerned, of the objectives aimed at and of the schemes to be introduced - including the development of training of employed workers and new entrants, young and adult, into industry, reflect efforts to meet actual needs.

However much remains to be done in two directions namely :

- (i) to establish the co-ordinated machinery, the methods and the technical services needed to link training policies and programmes with manpower planning and assessment (this aspect has already been touched upon in the preceding section of this paper); and
- (ii) to link planning of training with general educational planning which is still a new endeavour in Latin America ; a more rational distribution, between the vocational training stream and technical and vocational education stream, of the functions to be carried out is essential, not only in order to make the most effective use of existing resources but, above all, because their respective objectives are largely complementary. The I.L.O. is associated with other international organisations concerned in projects relating to overall planning of educational and training programmes in relation to development. In the long run, action in this connection should relate to the structure of the education and training systems as well as to the programmes and curricula : consideration may, for instance, be given to the possibility of providing, within or without the general education system, for industrial pre-training, at the end of the period of compulsory schooling, for those who leave school at a relatively early age.

Information and research. Following upon a resolution adopted by the Buenos Aires Conference of American States Members of the I.L.O., an Inter-American Vocational Training Research and Documentation Centre now known under the name of CINTERFOR, was created in 1963 and was established in Montevideo in 1964. The Centre is engaged not only in research and documentation, but is also expected to play an active role in promoting the growth of positive, permanent, collaboration among the national training agencies in the region, to develop new patterns for co-operation between these agencies and the I.L.O., and to help the agencies concerned in solving general and technical problems of vocational training (methods of instruction, curricula, teaching aids, etc.) for all sectors of the economy.

The principal landmarks in the short history of this new institution for co-operation between American countries towards the improvement of vocational training, have been two seminars; one was held in 1964 on the organisation and planning of vocational training and another one, in Caracas in 1965 on the application of modern methods of teaching in vocational training, including programmed instruction.

One of the most encouraging features in the development of CINTERFOR is the voluntary financial support which it is receiving from national training institutions; which is a tangible proof of the interest of the agencies concerned in the establishment of machinery for joint research and intra-regional co-operation in their field. The Centre receives an annual grant under the I.L.O. regular budget and contributions requested by the countries of the region under the U.N. Development Programme; in addition to the host country contribution of \$ 30,000 per annum, furnished by the Government of Uruguay, it has received voluntary contributions from INCE in Venezuela, CONET in Argentina and SENAC in Brazil. SENAI in Brazil and the Government of Trinidad and Tobago have promised to make voluntary contributions.

CINTERFOR is assisted by a technical Committee, composed of the representatives of the countries concerned; this Committee will meet at Buenos Aires on 25 to 27 April 1966 to review the programme of research, now well started, and to outline a programme of work for the Centre, including research and seminar activities, in accordance with the general directives which were adopted at its previous meetings (Rio de Janeiro, 1964 and Montevideo, 1965). Essentially, three types of action are envisaged :

- 1) Further studies and projects on the planning of vocational training;
- 2) mutual assistance within the region on the establishment of training methods and techniques applicable to workers and technicians and for the preparation of training materials;
- 3) staff training by the exchange of teaching staff and administrative personnel for courses of varying duration and seminars on subjects of mutual interest.