

BIBLIOTECA NACIONES UNIDAS MEXICO

**AN APPRAISAL OF THE TECHNICAL
ASSISTANCE RECEIVED BY THE RAILWAYS
OF LATIN AMERICA**



**LATIN AMERICAN RAILWAYS ASSOCIATION
ECONOMIC STUDIES COMMITTEE**

A. S. A.



**UNITED NATIONS
ECONOMIC COMMISSION FOR LATIN AMERICA**

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C O N T E N T S

Introduction	1
Chapter I The role of technical assistance in the rehabilitation of Latin American railways	5
1. Definition of the type of technical assistance considered in this document	5
2. Reasons why the Latin American railways need assistance	6
3. Purpose of technical assistance for the rehabilitation of the Latin American railways	9
4. Sources of technical assistance	11
5. The financing of technical assistance and railway rehabilitation projects and the role of the international financial institutions	12
Chapter II Problems which have affected technical assistance projects for Latin American railways	15
1. The initiative for the projects	15
2. The opportuneness of a project	16
3. The initial diagnosis and the establishment of objectives	17
4. The terms of reference of the project	19
5. Co-ordination with investments	21
6. The selection of the consultants	21
7. Information systems in technical assistance projects	24
8. Prior training and assignment of the counterpart personnel	25
9. Work styles and co-ordination between the counterpart personnel and the consultants	26

10. Difficulties encountered in introducing the changes proposed and procedures for the study, approval and application of the recommendations	29
11. The training of the railway personnel	32
12. Supervision, reports on the progress of work, and evaluation of the results of a technical assistance project	34
Chapter III Recommendations for making technical assistance more effective	37
1. Basic requisites for the success of a technical assistance project	37
2. Stages in the rehabilitation of a railway	43
3. Preparation of the terms of reference	47
4. The selection of the consultants	51
5. Preparatory activities and assignment of counterpart personnel	57
6. Supervision of the project	59
7. The evaluation of the technical assistance	62
8. Conclusions	65

INTRODUCTION

For some years now Latin American railways have been receiving technical assistance, especially from outside the continent, which has brought about an extremely important transfer of technology. In the process, considerable experience has been accumulated, both in the railways and in the international agencies which finance or supervise such assistance, on appropriate strategies to be followed in preparing and implementing technical assistance programmes as well as on the difficulties which are encountered in the transfer of technology.

The Secretary-General of the Latin American Railways Association (ALAF), convinced that technical assistance is essential to attain the goals which have been set in the rehabilitation plans of many railways in the region, organized a seminar to evaluate the technical assistance which has already been received in the region with a view to improving its efficiency in the future. The seminar was held in Montevideo, Uruguay, from 13 to 18 October 1975, concurrently with the Eleventh General Assembly of ALAF.

Delegates from the railways of Argentina, Bolivia, Brazil, Chile, Mexico, Paraguay and Uruguay participated in the seminar, together with observers from the World Bank, representatives of the consultancy firms *Ingeniería y Economía del Transporte* (INECO), *Société Française d'Etudes et de Réalisations Ferroviaires* (SOFRERAIL), *CONSARSUD Asesoramiento y Consultoría S.A.* and *TRANSCON S.A.*, and representatives of Latin American manufactures of rail-road equipment. The discussions were

based on a document prepared jointly by ALAF and the United Nations Economic Commission for Latin America (CEPAL), and on papers prepared for the seminar by CONARSUD Asesoramiento y Consultoría S.A., SOFRERAIL, Mr. Lafayette Prado (President of TRANSCON S.A.), and Mr. José Bronfman and Mr. Francisco Domínguez. Secretariat services for the seminar were provided by ALAF and CEPAL.

The railway companies represented at the seminar were in agreement that it was necessary to improve the preparation, implementation and evaluation of technical assistance projects for rehabilitating the railways of Latin America and were convinced that it is advantageous to make increasing use of the technical knowledge already accumulated in the region —especially among Latin American consultancy firms and the railways themselves— in the implementation of future technical assistance projects.¹

At the request of the seminar, the Eleventh General Assembly decided to ask the Secretary General of ALAF to prepare a document jointly with CEPAL which summarizes the exchange of ideas and experiences which took place at the seminar, as well as the contribution made by the documents presented there. In response to this request, the present document analyses the role of technical assistance in the rehabilitation of Latin American railways and considers the most common problems which have affected the

¹ See the conclusions of the seminar in "El seminario de asistencia técnica" in Latin American Railways Association, *Revista ALAF*, Vol. 1, Nº 1, March 1976.

preparation and implementation of technical assistance projects. Many of these problems were identified in the replies of the railways of Argentina, Bolivia, Brazil, Chile, Colombia, Cuba and Mexico to a questionnaire prepared by ALAF and CEPAL.

This report covers many different themes, most of which would by themselves justify as extensive a study as that which follows. For this reason, it may appear that some aspects have been treated in a superficial or over-simplified manner. It should be remembered, however, that the purpose of this study is to initiate a dialogue and to provide a conceptual framework on the basis of which experience can be accumulated and interpreted in a more systematic way. Technical assistance as a vehicle for the transfer of technology is a complex matter and has not been the subject of in-depth study in Latin America aimed at obtaining full advantage from the considerable resources dedicated to it.

On the basis of the analysis made in this document it can be stated that in order to improve the efficiency of technical assistance it is necessary to make certain changes in the way projects are generated and carried out, particularly as regards the action of the railways receiving the assistance, the work of the consultancy firms providing it, and the supervision exercised by Government and international specialized agencies. In addition, changes also need to be made in the preparation of the programmes approved and financed by national or international financial institutions. The final chapter of the document puts forward some recommendations which may serve as a basis for the

management of future technical assistance projects aimed at the rehabilitation of Latin American Railways.

ALAF and CEPAL hope that the exchange of experiences which took place at the Montevideo seminar and the present summary of its results will help to improve the effectiveness of the work done by all the bodies involved in railroad technical assistance. These two organisations are also grateful for the co-operation extended by the railway companies which answered their questionnaire and participated in the seminar. Finally, they wish to stress the important contribution made by the papers presented at the seminar, many of the ideas of which have greatly enriched this document.

Chapter I

THE ROLE OF TECHNICAL ASSISTANCE IN THE REHABILITATION OF LATIN AMERICAN RAILWAYS

1. Definition of the type of technical assistance considered in this document

Technical assistance can take various forms, in particular:²

- technical advice;
- personnel training;
- demonstration of procedures designed to improve or propagate technology;
- experimental activities aimed at seeking methods and equipment best suited to local conditions;
- dissemination of technical information.

This document does not deal with cases where an organization hires specialized personnel to introduce certain changes in the systems after having itself studied in detail the need for such changes, their advisability and their form. Instead the analyses made refer to the cases where a railway needs technical assistance in order to identify the problems which are affecting its operation and the links which exist between them, so as to apply a co-ordinated programme of action with a view to finding global solutions which may also call for the simultaneous formulation of an investment programme.

²Peter Lengyel, "Le rôle de l'assistance technique dans le développement économique", *Tiers-Monde*, October-December 1960, Vol. I, No 4.

2. Reasons why the Latin American railways need assistance

Most of the Latin American railways were constructed by private companies to serve specific purposes such as the transport of agricultural and mining products to centres of consumption or seaports. They were not built according to any general plan, and because of this there has often been overlapping of services in areas of low traffic density. The technology with which many Latin American railways were constructed and the shortage of funds for tackling more adequately the enormous obstacles of terrain, particularly in the case of mountain railways, explain the unfavourable geometrical characteristics of the layout of many railway lines. The early constructors often ran into serious financial problems, and in quite a few cases Governments had to intervene in order to finish the lines.

Until 1945 the Latin American railway companies generally broke even and sometimes even had an operating surplus. However, their basic financial and technical position was already tending to deteriorate rapidly, mainly because equipment and facilities were not replaced opportunely and because of inadequate maintenance during the economic crisis of the 1930s, subsequently aggravated by the impossibility of obtaining material and equipment during the Second World War. The technical obsolescence of the railways after the war, together with spiralling costs and the delay of Governments in granting tariff increases, made it impossible for companies to maintain, let alone improve, their services in order to meet the increasing

demand for transport. The railways which remained in private hands experienced similar problems and their annual deficits increased to such an extent that Governments had to nationalize them, sometimes only a few years before the end of their concessions.

While the railways were struggling with these difficulties, road transport in Latin America was increasing at an explosive rate, favoured as it was by the railways' lack of transport capacity, the construction of paved highways, and the technological advance represented by the appearance of high-capacity trucks equipped with highly efficient diesel engines.

The technological changes in rail transport created new problems for railway management. The transition from steam traction to the use of the new diesel locomotives gave rise to many technical and financial difficulties such as the need to train personnel in new methods, to reorganize the repair shops and to revise operating methods. The transition from steam to diesel has taken a long time in some railways, especially because of the lack of sufficient economic resources, which has made it necessary to maintain two systems of traction, thus duplicating the maintenance services and consequently causing extra costs. Furthermore, with the change from a position of monopoly to one of intense competition, the railways were forced to adopt a new approach to marketing their services.

Some of the problems most frequently encountered by the Latin American railway companies can be characterized as follows:

- a) increasing operational deficits which burden the national budget to the extent of monopolizing the attention of the country's financial authorities;
- b) an excess of poorly qualified, badly paid personnel;
- c) a paucity of experts or specialists, most of whom are in any case disillusioned about the possibility of rehabilitating the company;
- d) railway networks constructed many years ago, with many sections which are no longer in keeping with current transport requirements;
- e) increasing loss of traffic because of competition from road transport, even in the case of freight for which theoretically the railways should be the most suitable means of transport;
- f) poor maintenance of the permanent way;
- g) rolling stock which is both insufficient and worn out by lack of adequate maintenance;
- h) inadequate planning of activities and lack of administrative unity;
- i) operational upheavals because of the adoption of diesel traction without prior planning;
- j) poor general operating conditions which militate against the observance of regular schedules and the efficiency of the services.

Because of the broad range of problems encountered, the railways and international financial institutions have had to consider the possibility of carrying out rehabilitation projects which include a global and combined analysis of all

aspects affecting railway operation and management and the formulation of investment plans needed to ensure the success of the projects. This approach to railway rehabilitation requires assistance from outside the company itself, since the best of the latter's staff are tied up in routine operational activities and do not have sufficient time to devote to defining and solving the more basic problems of the railway. By considering the situation objectively, the outside technical assistance experts can identify these problems and their inter-relations, which is an indispensable requisite for proposing integral solutions. At the same time, the work of diagnosis and of formulating solutions is facilitated when the experts already have a panoramic view of railway problems because they have studied them in other railways and applied new approaches and solutions.

3. Purpose of technical assistance for the rehabilitation of the Latin American railways

The purpose of technical assistance is to provide the railway concerned with the experience, knowledge and solutions accumulated during long years of work and experimentation in other railway companies and even in other spheres of industrial and managerial activity, and to facilitate, through the formation of teams made up of outside experts and personnel from the railway itself, the identification of the most appropriate solutions for each sphere of activity as part of a global approach to the railway system which it is planned to rehabilitate.

Technical assistance alone does not solve the problems of a railway, but it does help to impart a new experienced and informed outlook to those responsible for the railway's administration and operation. It could be said that it is the most expensive training system in existence, since it basically consists of training the staff of the recipient company in new methods of work and in the utilization of machines and modern equipment to secure maximum efficiency.

The design of a plan for the rehabilitation of a railway must be based on a complete and exact diagnosis which makes it possible, in the first place, to project the role that the railway should play in the transport sector and which envisages the range of services which the railway must offer to meet the demand for transport in the country, bearing in mind the level of efficiency which can be attained, the possibilities of co-ordination with the other means of transport, and the railway's competitive capacity. In practice, the programme of services which the railway is to offer will be reflected in its itineraries, from which it is possible to assess the repercussions which the planned services will have on the various programmes for the allocation of locomotives and equipment, with a view to planning their maintenance, the programme for the maintenance of the permanent way and fixed installations, the programme for the supply of materials for all the operational and production activities, the personnel programme, the investment programme, etc., as part of an iterative process which ensures that the optimum balance for each programme is obtained. In the light of the

condition of the equipment and the state of the installations and permanent way of the railway, the modernization plan should also envisage a plan of action designed to improve the administration and methods of work and a short- medium- and long-term investment plan for the replacement of obsolete elements and the adaptation of the company's transport capacity to the levels required by the demand transport services.

4. Sources of technical assistance

Technical assistance may come from national or international sources, the latter being the more frequent. Bilateral aid programmes offered by governmental agencies of developed nations, projects financed by the United Nations Development Programme (UNDP) and technical assistance programmes forming an integral part of modernization loans from international financial agencies are the most common forms of technical assistance from outside sources. Technical assistance may use national resources, but only in spheres in which competent technicians, in addition to those of the railway itself, are to be found in the country. This is particularly likely in the case of experts in organization and administration, spheres in which the views of persons coming from outside the railways can represent a constructive contribution.

In the case of bilateral aid, technical assistance is almost always linked with the utilization of technical personnel of the donor country and generally entails the subsequent supply of equipment manufactured in that

country. The implications of these kinds of conditions must be analyzed carefully before an assistance programme of this type is accepted, so as to avoid accepting restrictions which may prove to be too rigid.

In contrast, the technical assistance offered by UNDP or international financial bodies without commercial commitments has the advantage of giving the recipient considerable freedom of choice. At the same time the wide experience accumulated by the executing agencies of UNDP, generally the World Bank, can be very useful in the planning, execution and supervision of technical assistance.

*5. The financing of technical assistance and
railway rehabilitation projects and the
role of the international financial
institutions*

When a Government decides to make use of technical assistance in order to modernize its railways, it must earmark the necessary funds to finance the technical assistance project and the investments needed to back up the administrative and operational reorganization which is to be undertaken. If because of its magnitude the rehabilitation programme cannot be carried out with the resources of the railway company itself or of the Government, it is necessary to turn to the international financial institutions or the bilateral aid programmes. Whichever alternative is selected, the financing bodies will generally insist that technicians from outside the company should make a detailed study of the situation of the

railway and that the Government should undertake responsibility for financing part of the total cost (especially the component in local currency) and should also give an assurance that the internal reorganization measures recommended as part of the technical assistance project will be adopted.

Since the railway companies are generally large entities with very large operating budgets, the cost of consultant services does not seem to be a decisive factor in deciding whether to use them or not.³ Even so it is worth noting that the Montevideo Seminar clearly showed that in some fields it is perfectly feasible for Latin American railway companies to share the costs of certain common programmes through regional co-operation. The railway companies do have the opportunity to share common programmes where they can make use of common experience. For example, after a study has been made of systems for determining costs and methods for fixing tariffs, there is nothing to prevent a body such as ALAF itself or CEPAL from preparing a programme which can be applied in different companies, with the appropriate adjustments. Studies capable of being used by different companies can also be planned for such fields as the improvement of information systems for planning and management control.

³The survey made by ALAF among Latin American railways which had received technical assistance showed that, except for one railway, the total cost of consultancy activities amounted to less than one per cent of the annual budget of each company and, where it formed part of a larger credit, it never exceeded six per cent of it, the percentage being much lower in most cases.

The greatest benefit of this type of regional co-operation is perhaps not so much that it reduces the cost of introducing new techniques, but that it takes advantage of the experience gained in each country through an adequate feedback process.

The role of the international financial institutions such as the World Bank is not confined to the financing of rehabilitation projects, but goes much further. Because of their vast experience in similar projects in all parts of the world, they are in an ideal position to help prepare technical assistance projects and supervise their implementation. The breadth of vision which their technicians have for considering the transport problems of a country in an integral manner brings a global criterion to bear on the fixing of investment priorities in the transport sector, and this is a great help to Governments. Furthermore, because of their specialized knowledge of the consultancy market, they are able to give sound advice on the selection of consultants, bearing in mind the specific conditions of each project. In order to carry out these tasks the World Bank periodically reviews the experience accumulated in order to incorporate new criteria and solutions.

Chapter II

PROBLEMS WHICH HAVE AFFECTED TECHNICAL ASSISTANCE PROJECTS FOR LATIN AMERICAN RAILWAYS

1. The initiative for the projects

It is difficult, from an analysis of the questionnaires answered by the railway companies which have received technical assistance, to determine the origin of the initiative responsible for giving rise to a consultancy programme. Sometimes the railway company takes the initiative, but even so it is likely to have been influenced by other factors such as the desire of the Government itself to improve the company's financial situation, or the railway's need to obtain support for investment programmes, or the example offered by other Latin American railways or those of other continents.

In some cases the technical assistance has not been as successful as it might have been because, among other reasons, the railway company was not fully convinced of the need for it and only accepted advisory assistance because the Government made it a condition for supporting the application for the credit needed for rehabilitation. When railway companies have been forced to accept advisory assistance this has tended to have adverse effects, especially as the railway executives tend to doubt the real utility of the project. The prospects for the success of a technical assistance programme depend mainly on whether

the railway company takes the initiative or at least is convinced that it needs advice.

In only a very few cases have the technical assistance projects originated from a global analysis of the problems which affect the functioning of the transport system as a whole and the need to determine the function that the railways should fulfil within this system. In general technical assistance projects have been based on a partial approach which in the long run did not contribute to the overall solution of the problems since they did not take into account fundamental variables in the analysis.

2. The opportuneness of a project

According to the information provided by various railways, the approval and initiation of technical assistance projects has generally been very slow, and in some cases has taken up to five or six years. The cause of this excessive delay is the complexity of the negotiations and the procedures applied by the institutions which provide financing for the projects. The only cases of relatively rapid initiation of projects have been those involving direct contracts. In view of this, while a project may be opportune at a particular moment, it may cease to be so in the course of protracted negotiations, especially as often there are changes in the management of the companies or in Government personnel and one of the most important conditions for the opportuneness of a consultancy project is the political will to accept the reforms suggested and the commitment to carry out the investments considered necessary.

In general, technical assistance is almost always advantageous for the recipient, but it would be very much more useful if, in addition to being necessary, it were opportune. It is thus important to be able to recognize the elements which determine whether consultancy is opportune. The main task of the offices of the United Nations Development Programme (UNDP) in each country is precisely that of identifying the needs for technical assistance and its opportuneness, but the country programmes prepared by UNDP together with the national planning authorities do not seem to be sufficiently flexible to allow the broadening or restriction of the flow of resources to specific technical assistance projects in accordance with changes in the factors which determine their opportuneness.

3. The initial diagnosis and the establishment of objectives

The diagnosis, regarded here as the point of departure for defining a technical assistance project, often has the defect of analysing the railway's problems in a very partial manner, without taking a global view of the deficiencies of the transport system of the country as a whole and its ability to meet demands adequately, these being indispensable elements for defining the role that the State should assign to the railway within the sector. This defect is especially serious when there is no explicit general planning mechanism which considers the relations of the railway company with the government, the interaction of its programming of activities with the competitive conditions of the transport market, and the traffic that the railway

can secure in its area of influence. Another defect of a partial diagnosis is that it does not present a full picture of the internal relationships between the programmes for production of services, the programme for track and rolling stock maintenance, and the programmes for materials, personnel, investment, finances, etc.

One aspect which is not normally considered very important in the initial diagnosis is the determination of the company's capacity to absorb the technical assistance through the availability of counterpart personnel who must be assigned full time for the duration of the project. This situation is particularly significant when massive advisory assistance is proposed covering virtually all the spheres of activity of the company. In the light of the experience of the Latin American railways it may be concluded that it is often extremely difficult, and maybe even counterproductive, to try to resolve simultaneously a wide variety of problems, ranging from planning to operational details, through technical consultancy. Apart from the usual shortage of financial resources, this is due to the lack of permanent professional staff at the various levels who can keep the companies functioning with the traditional processes and at the same time introduce changes which take time to implement and require a long process of study. Thus the initial diagnosis should devote special attention to fixing priorities and should establish a sequence of tasks which, without envisaging too many simultaneous operations which would represent an excessive burden, gives due consideration to the interrelations between the different aspects to be included in the

programming of the project. Whenever possible it is preferable to tackle the problems gradually.

At the initial planning stage of many consultancy activities the precise objectives to be attained are not defined, and instead more general objectives are preferred which, although of indisputable validity, are more difficult to evaluate at the end of the project. In some cases the consultants are only expected to formulate recommendations, while in others their assistance is required in order to implement the recommendations proposed. In most projects the objective of the technical assistance is attained as far as the formulation of recommendations is concerned, but innumerable problems arise at the stage of implementation: lack of resources, especially when the assistance was not linked with the granting of credits; delays in the application of the recommendations, sometimes caused by their effects on labour or other conditions; insufficient time available to the consultants, which in many cases leads to attempts to solve the problem by successively extending their contracts but which reveals deficiencies in the formulation of projects; etc.

4. The terms of reference of the project

The preparation of the terms of reference on the basis of the diagnosis is one of the most difficult aspects of a technical assistance project. The most frequent fault observed is that the process of formulation and approval does not always adequately ensure the participation of all the parties concerned. There also tends to be a lack of

consistency between the objectives proposed and the means available to attain them.

Frequently, stereotyped terms of reference are used which are not revised to take into account the special circumstances of the railway concerned. Use should be made of the creative capacity of the railways, the Government and the international bodies participating in technical assistance projects in order to ensure that the terms of reference correspond to the particular characteristics of each situation and incorporate innovatory ideas which make it possible to try out new concepts in technical assistance.

The fact that the document containing the terms of reference constitutes the basis for inviting tenders from consultancy firms imposes a rigidity on its preparation which becomes an obstacle during the execution of the project. After signing the contract for the services of a consultancy firm it is not always possible during the implementation of the project to incorporate the changes which may become necessary in order best to attain the objectives.

When the terms of reference of a project are prepared, the criteria for the evaluation and definition of the indicators which form the basis for assessing to what extent the project can be considered a success or a failure are usually omitted. This is particularly prejudicial to the effective supervision of the progress of the project.

5. Co-ordination with investments

According to the information supplied by the Latin American railways which have received technical assistance for rehabilitation, one of the most common causes of failure in the implementation of the recommendations is poor co-ordination between investments and improved methods of work. In some cases it was not even foreseen that it would be necessary to make simultaneously investments essential for the success of certain reforms. A typical example is that of the introduction of preventive maintenance systems, which require an initial investment in order to build up a minimum stock of spare parts to ensure that they are available when needed for the proper functioning of the system.

The programming of investments in equipment and spare parts—particularly where purchases abroad are involved—depends on a number of contingent elements so that it is not always possible to know exactly when they will be available. Any measure which depends on investments must be very flexible so that it can be adapted to the changes which may occur.

6. The selection of the consultants

The experts who advised the railways surveyed did so almost without exception as employees of a consultancy firm and not in an individual capacity. Where the consultant services were commissioned and financed directly by the railway, no attempt was ever made to take

advantage of the experience of other Latin American railways, and the prestige of the consultancy firm was the determining factor in its selection.

Much of the work of providing advisory assistance for the railways has been carried out through the United Nations Development Programme (UNDP), which in all cases has designated the World Bank as its executing agency. Other projects have arisen from direct negotiations between the Governments and the World Bank, in the context of general loans for the rehabilitation of the railway systems. The methods of selecting consultants vary according to the source of financing, and the railways that have received technical assistance described methods ranging from the direct selection of consultancy firms by the Bank without any participation by the railway, to the selection of the firms by the latter on the basis of a list provided by the Bank, with intermediate methods of selection in which the Bank has allowed the railways varying degrees of freedom to refuse particular consultants. In Latin America the Bank has never entrusted the entire selection process to the railway.

Once a consultancy firm has been hired, the list of experts approved and the programme initiated, it is rare for any important changes to be made in the composition of the missions. This could mean either that there is a lack of flexibility in the procedures, or that the railways always find the individual experts satisfactory.

The consultants for technical assistance projects for the railways of the region have mainly been chosen from

European, or occasionally North American, consultancy firms. More recently, however, national teams of technical advisers have been formed in some of the more developed Latin American countries, mainly in the specialized fields of project evaluation and engineering and the rationalization of administrative systems. The work of these teams is still primarily limited to the national sphere, although some firms are already showing greater interest in extending their sphere of activity, even beyond Latin America as in the case of the Brazilian consultancy firms which are providing services in African countries.

The World Bank, which utilizes the services of a great many consultancy firms in its projects throughout the world, has wide experience in hiring consultants and keeps up-to-date registers; it has also developed rigorous selection procedures. However, when a developing country wishes to hire directly the services of consultants it normally has to begin by soliciting expressions of interest from specialized firms and then make a selection, on the basis of the information provided, of those which will be invited to submit formal offers. The process of selecting consultancy firms is fairly complicated since many different factors are involved in assessing offers and it is necessary to have a great deal of practical experience and a full knowledge of the work carried out by the firms elsewhere in order to ensure the most suitable selection. The presentation of each consultancy firm is generally very well prepared and embellished so that it is sometimes difficult to make a systematic and rigorous analysis of the offers. While it would be very useful to consult other Latin American

railway companies for which the firms have carried out work up to now the railways have not done this.

Most of the major technical assistance projects carried out in the region have encountered difficulties because inadequate attention was paid during the formulation of the technical assistance programme to the designation of the head of the mission. In many cases one of the senior experts in a particular field included in the project is given this additional responsibility, so that he has to carry out his specific responsibilities while at the same time acting as head of mission. A good expert in a specific field does not necessarily have the ability to direct a technical assistance mission efficiently, particularly if he can only devote part of his time to this task. The management of a large number of experts and the relations with the counterpart personnel and the executives of the railway require constant attention in order to foresee possible problems and find solutions before a crisis occurs, and it is therefore advisable for the head of mission to carry out this function on a fulltime basis. Furthermore, if a full-time head of mission is designated it is possible to choose the candidate who is most suited for the post.

7. Information systems in technical assistance projects

Although it is widely known that technical assistance missions often fail, or are unable to carry out their work as efficiently as they might, because of the lack of information vitally necessary for their work or because the

experts have to spend much time looking for data, thus reducing the time left to them for formulating recommendations, the programmes rarely envisage giving an adequate place to information systems, not only as something needed by the consultants but also as a permanent activity designed to support planning and management control within the railway. In many cases the work of the counterpart personnel has consisted mainly of seeking data, and this work has not been adequately institutionalized, but has rather consisted of sporadic or one-time tasks. In two countries there were specialists who worked on the information systems, and in one of them this constituted one of the most important tasks. In the others the subject was only referred to in the final reports, or was accorded little importance; indeed, in one case nothing at all was done in this respect. It is very common to find examples of isolated actions such as the establishment of new accounting systems designed mainly to calculate costs to be used in fixing freight rates and passenger fares.

8. Prior training and assignment of the counterpart personnel

Only one company trained the counterpart personnel before the consultancy work began by sending them to take specialized courses in the country of origin of the consultancy firm; this had an exceptionally favourable effect on the course of the project. Another company arranged for some of the personnel to study a foreign language in order to improve the communication with the experts. In all the other cases the counterpart personnel

were not designated until the work of the consultants began. In some cases it has been indicated that the progress of the project has been hampered by the rotation of counterpart personnel.

The assignment of the counterpart personnel is a complex problem which requires a compromise solution. It might appear that the most appropriate solution would be for the counterpart personnel to come from the highest executive level so that the recommendations made by the consultants have a greater chance of being implemented, but this is not so because the high-level executives have very little time to devote to the study of recommendations and their practical application. On the other hand, if the counterpart personnel is chosen from lower executive levels, they can devote all their time to the project but most of the power to negotiate the application of the measures proposed is lost.

9. Work styles and co-ordination between the counterpart personnel and the consultants

The work style of the experts and of the counterpart personnel has varied greatly from one project to another and even within individual projects. In three railways, systems of team work were used which included the preparation of joint reports. In one of them the counterpart personnel had previously been trained by means of short courses with the railways of the country of origin of the consultancy firm, and this facilitated the integration between the experts and that personnel. In the

second a great deal of the initiative was taken by the railway, which directly financed the consultant services. In the third company in which the experts and counterpart personnel formed an integrated team, the advisory assistance was offered on the basis of close collaboration between Governments. In general the three enterprises were satisfied with the results achieved through the technical assistance.

In another railway the experts worked in isolation and the counterpart personnel did little more than provide information. In this case the experts prepared technical instructions to be put into practice by the company. The discussion of these instructions always took more time than anticipated and this delayed the progress of the experts' work. The railway was in agreement with the results obtained, but later, after changes in the management of the railway, the situation altered completely and major disagreements emerged among the new executives concerning the recommendations which the experts had formulated.

In three other railways the method of work varied according to each expert and the corresponding counterpart personnel. The latter participated to varying extent in the preparation of the consultants' reports, but independent work by the experts predominated. These cases would seem to reveal a certain lack of direction of the teams of experts, together with a lack of communication between the experts and the counterpart personnel because of the language barrier. In these three cases the railways were less satisfied

with the results, their assessments varying according to the sphere of work.

The relations between the experts and the counterpart personnel have almost always been good although the range has extended from very good to fairly poor. The latter occurred in cases where the work was not carried out in a team.

The co-ordination of the work among the counterpart personnel themselves and between this personnel and the experts has always been supervised by a single person within the railway and this seems to have produced good results. It is clearly important to ensure that this co-ordination is carried out at the highest possible level, especially as regards the process of the study, approval and application of the recommendations of the consultants.

The selection of the experts by the consultancy firms seems to be based more on their technical knowledge than on their personal qualities. The capacity to maintain good human relations and to transmit knowledge does not necessarily depend on the degree of mastery of technical matters.

Language differences have a great influence on the communication between experts and the counterpart personnel and on the possibilities of forming integrated working teams. An expert can lose a great deal of useful time, especially in short missions, in trying to learn the language of the country, without achieving adequate communication with the counterpart personnel.

There are some aspects which were not considered in the replies to the questionnaires but which could influence the working relations between experts and counterpart personnel. The railway companies almost all encounter the problem of the low salaries which their professional staff receive in comparison with those of other national activities, especially in the private sector, and this lack of incentive can be aggravated by contact with the experts from the consultancy firm who receive much higher salaries for similar work, thus accentuating the feeling of frustration.

In some cases the counterpart personnel worked full time with the experts, but in many others they divided their time between their own work in the company and their assistance to the experts. The latter situation occurred either when the counterpart personnel was of very high level or when the company did not have a sufficient number of professionals.

10. Difficulties encountered in introducing the changes proposed and procedures for the study, approval and application of the recommendations

The criterion which is perhaps most commonly used to gauge the success of technical assistance projects is the number of changes made.

There is no doubt that the most difficult part of technical assistance projects is the application of the recommendations. This shows that even though the consultants may be well acquainted with the work of

diagnosis and of determining what needs to be done, the implementation stage requires more than technical knowledge, since sometimes it is more important to understand the situation in which the recommendations are to be applied and to prepare adequate strategies for their implementation. Team work between the consultants and the counterpart personnel would seem to be essential at this stage.

The consultants, influenced frequently by their pre-conceived ideas, tend to recommend radical alterations in the systems which involve many changes whose justification, compared with the results to be obtained, is debatable. Deeper and more careful study of the existing situation by the consultants would perhaps indicate that it would be more practical to make marginal improvements to the existing systems which would make possible similar results without causing so much upheaval in the organization of the railway.

The evaluation of the results presented by the companies in their replies to the questionnaires shows that in general the most successful programmes are those concerned with tariffs, accountancy, track maintenance and construction, rather than those concerning the management of stocks of materials, maintenance of equipment and personnel management. The success depends on the type of changes which have to be made in order to improve a particular system and on the relation between the changes and the availability of resources, and the effects they have on other systems, particularly labour relations.

One of the most frequently cited causes of difficulty in the application of recommendations is the opposition of the railway workers to the changes proposed. All human organizations are resistant to changes, especially when they affect the working conditions of their members. This reality has to be recognized and it must be borne in mind that changes in the systems of work must be preceded by a campaign which shows the need for these changes and must also be subject to negotiation which provides suitable incentives in compensation.

Technical assistance missions should not be discouraged by these difficulties, which on the contrary should spur the creative spirit of the consultants, who should adjust their recommendations to the realities of the labour situation and resources. If resources are lacking they should at least offer optional programmes on the basis of what is really available.

The lack of a prior definition of appropriate procedures for the study, approval and application of the recommendations generated in the course of the project is the most frequent cause of delay in the work of the experts and seriously affects the progress of the project. It is necessary to define clearly the responsibility of the experts, the counterpart personnel and the railway management within a procedure established for the implementation of the recommendations. One company adopted the system of presenting the recommendations in the form of service instructions which, once accepted, could be put into practice immediately through the regular administrative channels. This method of presenting the

recommendations seems very suitable, since translating the recommendations of the experts into service instructions greatly facilitates the work of the executives of the railway company. When, on the other hand, the recommendations are set forth in the classic form of technical studies, the executives not only have to devote time to their analysis but are also burdened with a great deal of additional work in disseminating, negotiating and applying the recommendations.

11. The training of the railway personnel

The training of the railway personnel is an essential part of a technical assistance programme. The process begins with the counterpart personnel who, through working closely with the experts, have the opportunity to learn new and more advanced techniques and also to practice modern processes of analysis. The frequent rotation of technical personnel during the technical assistance projects has been very detrimental to some railways, since the opportunity of applying the new knowledge acquired is lost and in most cases the company has not even taken the precaution of preparing a counterpart replacement in advance.

A significant aspect is the failure to envisage methods to enable the counterpart personnel to pass on the new knowledge acquired. It is probably difficult to carry out a task of this type while the counterpart personnel are engaged in the project, but it could be included with advantage in the programming of the activities of the project, especially as support for the application of recommendations which involve radical changes in the technology used.

Even in the best of cases, the transfer of technology represented by the technical assistance process only ensures the training of a limited group of railway officials who work in direct contact with the experts. In many projects training has not been specifically provided for. If the railway has not previously developed a full programme for the training and preparation of its personnel, then the technical assistance experts should help to make plans for this function to be carried out through a system of permanent instruction involving the training of instructors, the programming of courses and the establishment of the necessary schools near the places of work, or mobile classrooms in some cases.

One company which had a fairly advanced training system when consultancy began took advantage of the presence of the experts to prepare a considerable amount of teaching material which made possible the broad dissemination of the new methods they suggested, thus bringing direct benefits in the training of personnel and the application of the recommendations.

Some projects envisaged the training of personnel abroad, but in many cases this was postponed until the end of the mission and sometimes it never materialized. Instead of sending personnel abroad on study grants, one company preferred to bring in instructors so as to take fuller advantage of their teaching. The personnel sent abroad to study generally return to the company afterwards; some railways have required that such personnel should guarantee, by means of a contract or undertaking, to stay with the railway for some time after returning from study

leave. Even so, in some cases it has not been possible to keep for long highly qualified personnel who have studied abroad because their possibilities outside the company have increased as a result of their greater specialization. The method of sending personnel abroad should be used very prudently, because in general the levels of activity, resources and technical complexity are not always comparable or adaptable and the instruction thus gained is not fully utilized because of the enormous difference of scale.

12. Supervision, reports on the progress of work, and evaluation of the results of a technical assistance project

In general, the technical assistance projects have been supervised directly by the railway company and, in the cases where the World Bank was executing agency, it exercised additional supervision through periodic visits by its officials to evaluate the progress of the projects, taking into account the reports received from the consultants, the views of the executives of the company, and personal observation. In only two cases was the implementation of the project also supervised by governmental bodies, and in one of these the supervision was not very intensive.

Since the consultancy firms have to satisfy both the international executing agency and the railway to which they are providing assistance, some of the discrepancies which arise in the course of a project are thus more difficult to reconcile, as there is a tripartite relationship which is almost always poorly or inadequately defined. In

these cases, if the consultancy firm proceeds by successive approximations, particularly where recommendations on major changes are concerned, the special advantages of feed-back can be utilized. Generally the terms of reference of a project do not clearly stipulate the role and responsibilities of the executing agency as an active body within the project. If this aspect were clarified, a more catalytic role could be assigned to the executing agencies, which could play an active part through the supervision they carry out during the course of the project.

Because of the nature of a technical assistance project, the supervision is generally qualitative rather than quantitative. No real system has been developed to specify more fully the goals pursued and thus facilitate their later evaluation. It is only recently that the World Bank has included, in some contracts linked with loans, a commitment by the railway to attain certain general quantified goals. In this respect, it should be borne in mind that although the consultancy activities are directly aimed at solving technical problems, the greatest obstacles encountered by them are perhaps those of a strategic and sociological nature.

In the formulation of technical assistance projects it is generally stipulated that the consultants should prepare various reports on the progress of work. When international bodies are involved in financing and supervising the projects, these reports are sometimes prepared mainly to satisfy the requirements of such bodies and only secondarily to assist the railway in its work of checking and

supervising the tasks being implemented. In one case the reports were never translated into the language of the country and in others the company was the last to receive them.

In some cases the usefulness of the reports has been reduced both as regards their content and their opportuneness because of the practice of submitting them to the head office of the consultancy firm for approval before passing them on to the client. Here a distinction needs to be made between the periodic reports on the progress of the project, for which the head of mission should be responsible, and the reports which contain the technical recommendations of the mission, where the collaboration of the head office may be very useful at the stage of final revision.

In many cases there is insufficient concern about following the progress of the projects or, at their conclusion, seeing that the recommendations not yet implemented at the end of the mission are applied: thus, many recommendations are forgotten and the problems which were to be solved persist.

Chapter III

RECOMMENDATIONS FOR MAKING TECHNICAL ASSISTANCE MORE EFFECTIVE

1. Basic requisites for the success of a technical assistance project

One of the most widespread problems in the Latin American countries is the lack of a transport policy which clearly defines the function of each means of transport in national development and creates the conditions for effective co-ordination. The initiative for a technical assistance project for the railways should be generated within the context of the transport policy so as to help to define the role to be played by the railways and their interrelation with the other means of communication.

The complexity of the problems which affect a railway is generally reflected in a diversity of interpretations regarding their origin. The railways' most common line of argument attributes their difficulties to unfair competition from road transport, which sometimes receives large subsidies which distort its costs and therefore leads users to make a choice which is not always the most appropriate at the general level of the economy. This interpretation gives rise to a controversy which is very frequently encountered in specialized circles of the Latin American countries. Those in favour of the modal distribution of freight in accordance with the inherent advantages of each means of transport often forget that

these advantages do not have great value in themselves unless they are exploited through adequate technical and economic management. Unfortunately the lack of a global view of all the elements which affect the functioning of the transport system of a country and of the railways within that system have favoured partial technical assistance projects which in the long run have not contributed to the integral solution of the problems which they aimed to solve because they do not take into account variables which are of fundamental importance in the analysis. It is therefore essential that the programme of work of a technical assistance project should not only consider the internal problems of the railway but should also take into account the mutual links with the transport sector as a whole.

The function of the railway within the national transport system has frequently and erroneously been conceived as something abstract and static which can be expressed in terms of the long-distance transport of heavy freight or the transport of all freight over distances of more than 500 kilometres. According to this formula railway services are considered homogenous and it is supposed that a transport system needs only a single type of rail service. Although this formula could be appropriate in an industrialized country with a consolidated transport system which requires only marginal changes, it is not suitable in most of Latin America. In Latin America the basis of the surface transport system in the past —and indeed until only a very few years ago— was the railway system, which reflected the composition and spatial structure of national production. Currently, however, the nature of production is

changing and at the same time a road system is being created. In these circumstances the function of the railways cannot be determined once and for all, and it is necessary to study the range of services which the railway is offering and to determine what changes need to be made to this range. The appropriate composition of these services is also changing—very rapidly in some countries—so that it is more important to establish a procedure for the analysis and continuous modification of the services than to determine their ideal composition at a given moment. In other words the “function” of the railway in all the Latin American countries is constantly varying but it is rarely advisable, for political and economic reasons, to try to make abrupt changes in the composition of the services. The task of the railway managers—with the aid of technical assistance—is to determine in what way the composition of the rail services should be modified and to initiate a process of change so that within a reasonable period of time their new composition more closely approaches what is needed and the process of change is maintained so as to enable the railway to continue to adjust dynamically to future needs. It is possible to offer a range of very efficient services without realizing that the basic fault lies in the composition of that range. The task of a competent management consists not only of improving the quality of the services offered but also of constantly determining whether those services are appropriate. It is not enough to carry out a function well: it is much more important to carry out the appropriate function. The range of services which a railway should offer is the basic concept

for establishing the size of the railway network and programming its productive activities.

At the stage of diagnosis the efficiency that the railway would attain if a technical assistance programme and an investment programme were carried out is projected, but since the level of efficiency which can be attained is not known beforehand, the projection of the function of the railway initiated at this stage must continue, as part of an essentially dynamic iterative process. If this is done, the function of the railway is not linked to the past but to the future, and the need to improve efficiency in order to improve its relative position in the transport sector represents a challenge to the railway's executives and personnel.

The success of a technical assistance programme for the rehabilitation of a railway mainly depends on the various conditions which determine the opportuneness of the project. This concept of opportuneness is closely linked, among other factors, to:

- a) the importance and priority of the problems confronted being recognized in the country –and within the railway too– and being precisely identified;
- b) the political authorities being clearly determined to make a serious effort to improve the situation;
- c) the existence of suitable technical personnel within the railway to act as a counterpart to the technical assistance personnel so that it is certain that the technical recommendations will be absorbed and will continue to be applied in the company;

- d) the availability of consultants who are suited to the real needs of the railway and are capable of adapting their style of work to the particular conditions of the country;
- e) the availability of physical and financial resources, both domestic and external, for implementing the recommendations of the experts.

These conditions are essentially dynamic and it is therefore very important to be able to recognize them at the beginning of a given project in order to take advantage of those which exist and to do what is necessary to create those which are lacking.

The political decision to rehabilitate the railway must be sincere, conscious and unanimous in all spheres, both of the government and of the company. On this basis a process can be initiated which will require external technical aid and the application of a long-range investment plan to which, because of its repercussions on the economy of the country, constant attention will have to be paid until it yields results.

In the course of the technical assistance process many experts will arrive to examine in detail the functioning of all the activities of the railway and to make recommendations for its rehabilitation. If the programme is to be successful there must be a sincere resolve to provide the experts with all the data and assistance they need to carry out their task. It is essential that the railway personnel should recognize that the experts have come to help, as this

makes it easier for the latter to accustom themselves to the conditions of the railway and to national life and creates a favourable climate for the technical assistance. The sincerity of the railway executives' attitude is a determining factor at this stage. There have been cases where the recipient of technical assistance only accepted it because it was a condition for future loans for the acquisition of equipment and the programmes failed because the experts did not receive the necessary support and because no importance was attached to their recommendations.

The government and the railway should be conscious of all the repercussions that rehabilitation will have. The objectives should be clear and the goals fixed should be compatible with the resources available, with the capacity to absorb technical assistance, and also with the degree of training of the railway personnel. In other words, the technical assistance programme should be precise and realistic and not aim for unattainable results, so as to avoid disillusionment which could adversely affect the success of the entire programme. The experts can recommend solutions but they cannot decide on changes or apply them. These decisions fall entirely within the competence of the executives of the railway and, in many cases, the Government itself, and the laborious task of implementing the reforms is the responsibility of the management and personnel of the railway, with government support when necessary.

It is very important that the decision to have recourse to technical assistance should be accepted at all managerial and executive levels of the railway and that they should be

convinced of its usefulness and firmly resolved to support the programme. This is because while technical assistance is being provided the officials of the railway will have to make a special effort to assist the experts without neglecting their normal responsibilities, even if the designation of full-time counterpart personnel lessens this obligation. The recommendations of the experts may be interpreted by the railway executives as an implicit criticism of their management for not having made the improvements before. In order to avoid these difficulties the experts can encourage the railway executives to participate actively in the study of the solutions and therefore in the application of the recommendations formulated.

2. Stages in the rehabilitation of a railway

The first stage in the rehabilitation of a railway is the preparation, at the highest level, of a diagnosis of the railway's problems. The first task in this will be to consider the function that the railway company should fulfil within the country's transport system –that is to say, the range of services it should offer– envisaging as precisely as possible the goals to be achieved in relation to the levels of efficiency which are aimed at. The second task in the diagnosis will be to evaluate the measures needed to carry out the rehabilitation and the resources which the railway itself can mobilize to attain the goals fixed. In order to make the diagnosis it is necessary to have a planning outline which not only gives a clear picture of the relations

of the railway company with the Government, the interaction between the services which it offers and the competitive conditions of the transport market, and the custom which the railway can secure within its sphere of influence, but also permits the determination of the internal relationship as regards the programming of activities between the different programmes of production of services, maintenance of track, rolling stock and locomotives, supply programmes, personnel, investments, finances, etc.

When studying the rehabilitation of a railway it is almost inevitably necessary to consider changes in the personnel framework. This subject arouses great concern among the rail workers, and if it is not considered in an explicit way in the terms of reference at the diagnosis stage the consultants may run into resistance which can be detrimental to the project. The railway, with the support of the Government, should assume direct responsibility for any reductions of personnel.

Where possible, the diagnosis should be carried out by a small independent group of experts with great experience in various fields, so that the problems of the railway and their interdependence can be approached from a broad viewpoint. The diagnosis should be fully discussed, with the participation of the Government authorities, the railway company and, where appropriate, the international agency participating in the project. On the basis of the agreed diagnosis the group of experts can then prepare the terms of reference of the project, which will also be subject to a thorough examination. The goals in particular must be carefully reviewed and it

must be ensured that they are compatible with the resources available during the implementation of the project.

The second stage will consist of selecting and hiring the consultants, designating the counterpart personnel assigned by the railway on a full-time basis and programming the financial resources which have to be budgeted. When the contract with the consultancy firm is being negotiated, care must be taken to establish a realistic timetable of activities which is sufficiently flexible as regards the initiation of each task, so as to avoid loss of time by the experts in the event of delays in the completion of previous work or in the realization of the investments needed for the continuation of other work. When the timetable of work has been established, special attention will have to be given to programming simultaneous tasks, taking care to ensure that they are compatible with the enterprise's absorption capacity.

At the third stage the consultants will analyze the problems of the railway in detail in each sphere of activity selected and study the solution proposed. This is essentially a theoretical stage in which close co-operation is needed between the experts and the counterpart personnel so that the former can get an accurate picture of the situation of the railway in order to work out the most appropriate solutions. During this stage the consultants should bring the railway executives into the theoretical discussions in order to take their points of view into account and to associate them gradually with the reforms which are later to be proposed. As a consensus develops on certain reforms, the experts must elaborate their recommendations, taking care

to present them in the form of service instructions which, once discussed and approved, can immediately be applied through the normal administrative channels of the organization. This method of active discussion will require great creative effort at the strategic level on the part of the consultants, but the progress which can be made in this way will undoubtedly lead to fewer problems in applying the recommendations. The active participation of executives, counterpart personnel and consultants established in this way should take place in an atmosphere of professional collaboration in which it will be difficult to identify the origin of the recommendations while everyone will be committed to their successful application. At the same time as preparing the recommendations, the experts should be making a detailed evaluation of the mechanisms for applying them and programming the resources which are likely to be needed.

The fourth stage will be that of implementation, when the solutions proposed and approved are put into practice. At this stage the resources are obtained for acquiring the equipment, carrying out the construction and purchasing the materials needed. At the same time the personnel of the company are taught new operational methods and how to use new equipment.

The third and fourth stages will of course overlap in time. When the reforms require capital investment, they can only be carried out after financing has been obtained and the equipment and material are in the country, that is to say, during the fourth stage. The reforms which do not require investment, however, can and should be applied as

and when they are approved, that is to say, from the third stage onwards.

During the entire process of rehabilitation it is necessary to bear in mind that the technical assistance will be of limited duration and that the best legacy to leave to the railway will be that represented by the training activities and the motivation of the personnel to concern themselves about constantly improving the organization and its methods of work. In this respect technical assistance will only be completely successful if it manages to institutionalize within the railway a process of permanent and creative planning that will enable it to fulfil its role within the national transport system. Within this planning process the function of personnel training should be given priority attention, together with study activities which make possible a constant improvement in the quality of the railway services offered, so as to improve the competitive position of the railway.

3. Preparation of the terms of reference

Although the technical assistance process is clearly designed to introduce innovations in the procedures and methods of work of a railway in order to improve its operations, it is only very rarely that consideration is given to innovations in the technical assistance itself. The preparation of the terms of reference is a typical example of the repetition of model layouts from one railway to another, without any appreciable change in the criteria used in approaching each problem. Since the terms of reference contain the rules

governing the technical assistance process, any innovation or new approach should be reflected in them.

The preparation of the terms of reference is one of the key activities in a technical assistance project. In the first place it must be recognized that they do not usually reflect an impeccable Cartesian logic and that their preparation does not follow the lines of a theoretical treatise. Instead they are the result of a process of negotiation and successive approximations during which the conflict of objectives, interests and criteria has to be resolved within the framework of the limited resources available. The result assuredly will not satisfy the requirements of each and every participant in the negotiations, but the participants should recognize that the result finally reached is the best that can be achieved in the circumstances. Since the process of preparing the terms of reference is a political negotiation, it is essential that all the sectors concerned should be duly represented in the discussions. Incomplete consideration can jeopardize the future success of the whole project.

Since the terms of reference arise out of a process of negotiation which reconciles different positions, it is essential that they should be coherent. In this respect it should be ensured that:

- a) no objectives are set which do not correspond with the priority needs of the country;
- b) no objectives are formulated which cannot be attained through the activities planned for the project or with the resources assigned to it;

- c) no activities are proposed which are bound to lead to recommendations which cannot be put into practice.

By their very nature the terms of reference must correspond to the particular conditions of each situation, and at the same time they must have sufficient flexibility to allow the introduction of changes which may become necessary in the implementation of the project. The need for flexibility raises some difficulties in the contract with the consultancy firm, since the cost of consultancy is related to the tasks which the experts have to carry out during the project. However, the value that the consultancy firm places on its services in terms of expert/months can resolve any differences which arise because of the reduction or broadening of specific activities during the implementation of the project.

The first version of the terms of reference will be prepared during the stage of diagnosis and will serve as a basis for the invitation for tenders from consultancy firms. For this reason it must specify in detail the tasks to be carried out by the consultants and must give full details of the facilities which will be available. The terms of reference should give:

- a) The background and conclusions of the diagnosis;
- b) A detailed and precise description of what the consultants have to do; and
- c) A list of the services envisaged, the field work, the information available and the studies previously carried out.

On the basis of the first version of the terms of reference and the programme of work submitted by the consultancy firm selected, it will then be necessary to determine, during the negotiation of the contract, the sequence of tasks —represented by means of a histogram— to be carried out during the course of the project, thus establishing the precise terms of reference which will guide the implementation of the project, without prejudice to any changes which the parties may later decide to introduce by mutual agreement. The sequence of tasks should ensure that experts whose work is complementary are in the country at the same time, without however unnecessarily overburdening the executives of the railway who have to devote part of their time to the various experts.

The co-ordination between investments and improvements in methods of work which require these investments for their implementation is extremely important. Since there tend to be variations in the delivery dates of equipment or the completion of construction work, arrival of certain experts whose work is connected with these investments should be linked to these dates, as otherwise the experts would be in their posts but would not have the equipment they needed, thus leading to delays. This flexibility in arrival dates naturally creates serious difficulties for the consultancy firms in planning the activities of their experts.

When deciding on the detailed sequence of tasks in the programme of work to be carried out by the consultants, various problems of interrelations among tasks arise,

especially when the project covers many spheres of the administration and functioning of the railway. One of the dilemmas which tends to arise is the need to choose between broad assistance covering many areas of action simultaneously and assistance provided more gradually and limited to more specific spheres within a sequential programme of greater duration. In general it is considered that at the stage of theoretical analysis, the programming of activities should include more spheres of action in order to cover the relations between different problems. During the stage of implementation of the recommendations, however, the assistance may cover fewer spheres at one time but take the form of more prolonged action so as to avoid excessive upheavals in the organization, bearing in mind the fact that the negotiation of some reforms will be slow and that the executives responsible for applying them will have to devote a great deal of attention to them. It should not be forgotten that any process of change provokes adverse reactions and that a minimum period of preparation is needed to introduce changes, even if they are easily understandable and their benefits are indisputable. At all events each case has its own special conditions, and there may be railways with a high capacity for absorbing technical assistance which can absorb it without suffering any serious upheaval.

4. The selection of the consultants

The tasks involved in a railway rehabilitation programme are so broad that they require the participation of various experts who can form a unified working team. Since the

experts belong to a consultancy firm they have the good technical and administrative backing which is indispensable in a large-scale project. Before initiating the process of selecting the consultants it is necessary to decide whether the project is to be considered an indivisible unit or whether it can be split into clearly identifiable sub-projects whose interrelation is not an obstacle to the participation of two or more consultancy firms. Since the problems confronted by railways are of the most varied nature, it is often difficult to find a single consultancy firm which can tackle all of them with the greatest possible efficiency and competence. Moreover, if the technical assistance projects are considered as indivisible units it is very difficult for the Latin American consultancy firms to tender successfully in respect of them.

Furthermore, it is now time to consider how to retain in the region part of the benefits of providing technical assistance. In a technical assistance process the new experience acquired by the consultant is as important as that acquired by the client. One way in which the region could take advantage of both aspects of the experience derived from technical assistance projects would be through close co-operation between different Latin American railways in a few very specific spheres of activity. This co-operation could be organized under the auspices of ALAF, through the preparation of programmes which could be applied in different companies by making the corresponding adjustments. Among the subjects lending themselves to this type of regional co-operation are accounting systems, systems for determining costs and

fixing freight rates and passenger fares, the establishment of information systems, the maintenance of diesel locomotives, the establishment of nomenclature of materials, etc. The greatest benefit of this type of co-operation could be the creation of specialized Latin American groups which could help other railways to solve problems on the basis of criteria more suited to their particular situations and more in accordance with their scales of operation.

In some Latin American countries there are laws which oblige foreign consultancy firms to associate with national firms in carrying out any project. The purpose of these laws is no doubt to take advantage of the transfer of technology so as to create specialized groups within the country. Although this measure may be advantageous in some respects, it seems very ambitious when it is extended to spheres as specialized as railway technology. It would be useful, in the case of assistance to the railways, to revise this requirement and apply a regional criterion whereby Latin American consultancy firms would be treated as national consultancy firms for the purposes of their association with extra-regional consultancy firms. This could be another way of promoting the training of regional consultants.

Lastly, another way of taking advantage of the benefits of providing technical assistance in the region could be for the extra-regional companies which carry out their activities in the region to hire Latin American technical personnel. The application of technical assistance programmes in various railways of Latin America has already made it possible to train many highly qualified

professionals who can participate in consultancy work in the region and who have the great advantage of knowing the special conditions of the Latin American countries.

Many of these qualified technicians are no longer working for the railways, and if they were hired by a consultancy firm their experience would be recovered for the railway sector. Furthermore, although the hiring of those currently working for a railway would mean that company would have to do without their services for a time, it should be borne in mind that when they returned to it they would have increased their qualifications and experience and would be in a position to make an even more important contribution to the railway to which they belong.

The three options described in the preceding paragraphs can be a good way of training Latin American consultants in certain specialized spheres for the common benefit of all the railways of the region. It will be for the international financial institutions such as UNDP and the World Bank to support these initiatives and for the regional bodies to promote their development.

In selecting a consultancy firm to carry out a particular project it is very important to consider the reliability of the firm, its experience in projects of the same nature and the quality of its presentation as regards the programme of work it proposes for carrying out the consultancy task. It should not be forgotten, however, that a consultancy firm is no better than the personnel it offers to carry out the project. Generally the presentations

submitted by consultancy firms when tendering include the curriculum vitae of the experts offered. Because of the variety of ways in which these curriculum vitae can be presented it is very difficult to make comparisons, and it is therefore advisable to supply to the firms, in addition to the terms of reference, a model for the presentation of the curriculum vitae of experts in order to facilitate their evaluation.

Even though a study of the curriculum vitae may make it possible to evaluate the training and experience of the experts, there are many other factors and conditions which are important for ensuring the success of their work and which can only be assessed by means of a personal interview. Thus, once a firm has been tentatively selected to carry out a particular task it is worth visiting the headquarters of the firm and interviewing the head of the project and as many of the experts as possible.

When selecting the consultants it is necessary to ensure that the experts offered by the consultancy firm chosen will actually arrive when the project is initiated. If they are replaced by other experts it must be stipulated that their quality and competence must be equal to those of the experts originally offered.

A very important requisite in the selection of consultants is their facility of communication. At the stage of the conceptual analysis of the problems, it is desirable that the experts should speak the language of the country receiving assistance, since not all the officials with whom they have to come in contact speak foreign languages.

Competence in the national language is absolutely indispensable at the stage of implementing the recommendations, when the experts have to hold discussions with a much larger number of officials, some of whom have a lower educational level.

When assessing the experts during the selection it is important to ensure that they have the right level of competence for the execution of each stage. Very high-level experts are required at the stage of the conceptual analysis of the problems and the formulation of the recommendations, but in certain tasks of applying new methods of work experts are needed who are more familiar with the actual work, such as workshop foremen, track inspectors, traffic control directors, etc. At the same time, in order to determine whether the expert will adapt to a project, it is important to evaluate his experience in devising solutions similar to those proposed in the diagnosis of the particular situation of the railway.

In selecting consultancy firms and assessing the experts assigned to the project it would be worth consulting other Latin American railway companies where they have worked. The Latin American railways have very good channels of information through their participation in ALAF, and their executives know each other well enough to be certain that a consultation of this nature will be treated with appropriate discretion and responsibility.

5. Preparatory activities and assignment of counterpart personnel

Before the arrival of the experts the railway can make a start on various measures which will enormously facilitate the task of the experts and speed up the programme. The measures which the railway can take include:

- a) Assembling the basic documentation and statistics specified in agreement with the consultancy firm selected, establishing the channels through which the experts can rapidly find out about the company's internal situation and the transport sector of the country, and making sure that the experts will have access to all sectors of the railway;
- b) Making known to the staff the contents of the technical assistance programme, its scope and the advantages it will offer to the railway and its personnel. In spreading this information, it must be borne in mind that because of the importance of the trade unions in the formation of currents of opinion, their collaboration is essential for the success of the programme;
- c) Selecting the counterpart personnel and putting them to work on the tasks described in paragraphs a and b;
- d) Preparing the offices, selecting the administrative support personnel and securing all the necessary material elements for the work of the experts and the counterpart personnel.

If the technical assistance programme is to be successful it is important that it should have sufficient

trained counterpart personnel. The designation of this personnel tends to raise problems for the railway, which has only a limited number of top-category staff, who naturally occupy key positions in the organization.

It is not feasible to hire personnel specifically to carry out this work, firstly because they do not know the railway and thus are of no great use to the experts and, secondly, because once the contract has been completed they leave the railway so that the experience they may have acquired is lost and in any case the railway has no one who can continue to supervise the implementation of the recommendations. The only solution is for the railway to make the necessary effort to second a certain number of officials as counterpart personnel to work with the experts on a full-time basis.

The rotation of counterpart personnel during the period in which the consultancy work is being carried out is highly detrimental to the progress of the project. For this reason, when selecting the counterpart personnel it is essential to bear in mind that since they will work in close collaboration with the experts during the stage of conceptual analysis and the formulation of recommendations they will receive extremely valuable training which should be fully utilized by the railway for a number of years. It should be borne in mind that these officials will be responsible for continuing the work of the experts and will thus ensure the implementation of the recommendations and institutionalize the study and planning activities in the company once the work of the experts has been completed. None of these officials should be transferred to

another sector before having trained a successor, except where an official has to be transferred because he is not sufficiently competent to carry out his counterpart work. If possible, more than one person should be assigned to work with each expert and in certain areas counterpart personnel should be selected at different levels in order to ensure that some of them remain when the time comes for others to be promoted. At the stage of the implementation of the recommendations the expert should work with the largest possible number of officials of the railway and the notion of counterpart work will be somewhat modified, especially where experts in practical operations are concerned, as for example in the case of a specialized expert in permanent way maintenance who has to train all the line inspectors and the greatest possible number of track maintenance foremen.

6. Supervision of the project

One of the key activities during the implementation of the project is the supervision of the progress of work. Generally responsibility for the supervision of the project within the country falls to the railway company itself, although the Government may also entrust part of this work to another organ of the central administration. Those projects financed by UNDP or another international body are subject to additional supervision which is carried out through the reports submitted by the consultants or through periodic missions of officials from the body concerned. The participation of different supervisors can raise some problems, but it also has some advantages, especially for

the solution of disputes. The direct client of the consultancy firm is the railway, and consequently the firm's performance has to satisfy the requirements of the latter, but the consultant is frequently also accountable to the international body which has hired him. It is particularly important that the work of the consultants should satisfy the financial body when the main objective has been the preparation of an investment programme which the latter is to finance. The most important factor for preventing possible imbalances in this triangular situation is the consensus reached in the initial diagnosis and the commitments reflected in the terms of reference of the project. A sound and explicit initial agreement can eliminate difficulties during implementation, and if these become insoluble it is a clear indication that the project was not opportune. The head of mission of the consultancy firm bears the main responsibility for reconciling the interests of both sides, and he can draw many advantages from the situation for the benefit of the project if he acts tactfully and with sound judgement and manages to harmonize the requirements of the international body with the real possibilities of the railway.

The international body should supervise the work through periodic visits whose frequency will depend on the characteristics and degree of progress of the project. The consultants, in their capacity as advisers, do not have the authority to insist on the implementation of the recommendations they formulate, and it must also be recognized that there is a natural resistance to change in any institution. In situations of deadlock the presence of personnel from the

international body can be a catalytic factor in accelerating the implementation of the recommendations.

The terms of reference of the project should give clear instructions regarding the presentation of written periodic reports by the consultancy firm as well as the procedures to be applied in considering them. Specific mention should be made of the objectives of each type of report, their frequency, contents, length and the language in which they are to be written.

A few months after work begins the consultancy firm should present an inception report which summarizes the first impressions of its work and the plan it proposes to follow. This report should also propose the indicators which are to be used in the progress reports to assess the advancement made toward the objectives of the project. A full discussion of this report with the railway and, where appropriate, with the international body provides an opportunity to assemble timely and useful comments for the consultant, makes it possible to clarify the ideas of all those concerned, and provides the occasion to review the terms of reference if necessary.

The progress reports should be considered more as an instrument to improve the efficiency of the assistance being given than as a justification to the financial and supervisory bodies of what has been done. These reports should describe the action carried out during the period they cover, the main problems encountered, and the action envisaged for the next period.

7. *The evaluation of the technical assistance*

The process of providing technical assistance for the rehabilitation of a railway can prove very long and laborious, and it is essential to make provision for evaluation machinery in order to take advantage of the experience acquired during its implementation. The evaluation of a technical assistance project must be adapted to the form the project has taken; however, in general, it consists of a systematic review of the action carried out in order to judge the effectiveness, significance and efficiency of the technical assistance and to make the changes needed to improve future activities.⁴ Effectiveness should be interpreted in its broadest sense, so that it should not only refer to the extent to which the goals have been attained but also to their relevance. The significance should be assessed by considering the contribution made by the assistance to the general economic objectives of the railway. Lastly, the efficiency should be judged on the basis of the relation between the costs of the consultant services and the benefits gained.

The evaluation should not be viewed as an end in itself or as an academic exercise but as a tool. The more ambitious the goals fixed for the evaluation, the more costly and difficult the use of this tool becomes. This suggests that there is a limit for each particular case beyond which the cost of evaluation will be disproportionate to the benefit that it can provide.

⁴Organization for Economic Co-operation and Development, *The Evaluation of Technical Assistance*, Paris, 1969.

The evaluation of a consultancy project can be carried out either on completion of the project or some time afterwards. Evaluation at the end of the project is similar to the preparation of the final report and can serve to guide the company in exercising its responsibility to continue the action initiated through the assistance. Evaluation some time after the end of the project has the advantage of giving greater perspective to the assessment and makes it possible to evaluate more thoroughly the effects and duration of the changes. The supervisory missions also make an evaluation with a view to taking appropriate measures to ensure the best possible implementation of the project.

One of the aspects which it is important to consider in the process of evaluating a technical assistance project is the degree of assimilation and acceptance of the changes.⁵ Assimilation is understood to mean a real understanding of the essential characteristics and possibilities offered by a given innovation, while acceptance means the extent to which an innovation is disseminated within the company, which can also be described as its degree of propagation. Weak assimilation can be partially or totally offset by broad acceptance. A broad dissemination of the innovations can produce as many results as good assimilation by a small number of persons. Unless the objectives of a technical assistance project are either well assimilated by a small number of agents or superficially accepted by all there is the risk that the assistance will prove useless and will only

⁵ Peter Lengyel, *op. cit.*

have temporary effects which are totally lost when the main persons involved are no longer there.

The two major problems which must be resolved in evaluating technical assistance projects are: a) the choice of a suitable measuring instrument to assess the relative degree of success or failure, and b) the expression of the results obtained in terms which have real economic significance. In other words, what is most difficult is to define the criteria on which the evaluation of the projects should be based. In this respect a clear and precise definition of the objectives of the project can be very useful.

In the case of the Latin American railways, in spite of the diversity of the problems encountered by each one, all of them face two major challenges which are the basic objectives of the technical assistance projects. The first is the accurate projection and forecasting of the range of passenger and freight services which the railway should offer. In some countries it is felt that this objective simply consists of determining the proper dimensions of the railway system within the national transport system. The second challenge is to provide these services in an efficient manner. Thus, the work of evaluating technical assistance for the rehabilitation of a railway should consider the contribution which has been made to the simultaneous fulfilment of both objectives. During the course of the assistance the appropriate composition of services should be defined and at the same time machinery should be set up for adjusting these services with the passage of time. The consultants should also help to implement ongoing measures and mechanisms to improve the efficiency of the

services offered by the railway. In this respect the current efficiency is less important than the efficiency with which services will be provided once their new dimensions have been determined.

8. *Conclusions*

The success of a consultancy operation depends a great deal on the railway. It should not be forgotten that the consultants come from outside the organization and frequently from abroad and that this causes problems of adaptation. The executives of the railway should try to create an atmosphere of confidence and co-operation by establishing frank and effective communication, providing the experts with all the information which exists and which they need. In short, the consultant should feel that he is considered part of a team working to improve the railway. The consultant, for his part, should make an effort to understand the needs and limitations of the railway. If he cannot obtain all the information he wants he should look for a way of remedying the deficiencies. He should naturally make sure that his recommendations are applicable in the light of the conditions prevailing in the country. All this requires a series of adaptations and compromises, and one of the greatest qualities of a good consultant is therefore to know to what extent he can adapt to the situation without jeopardizing the results expected from his work.