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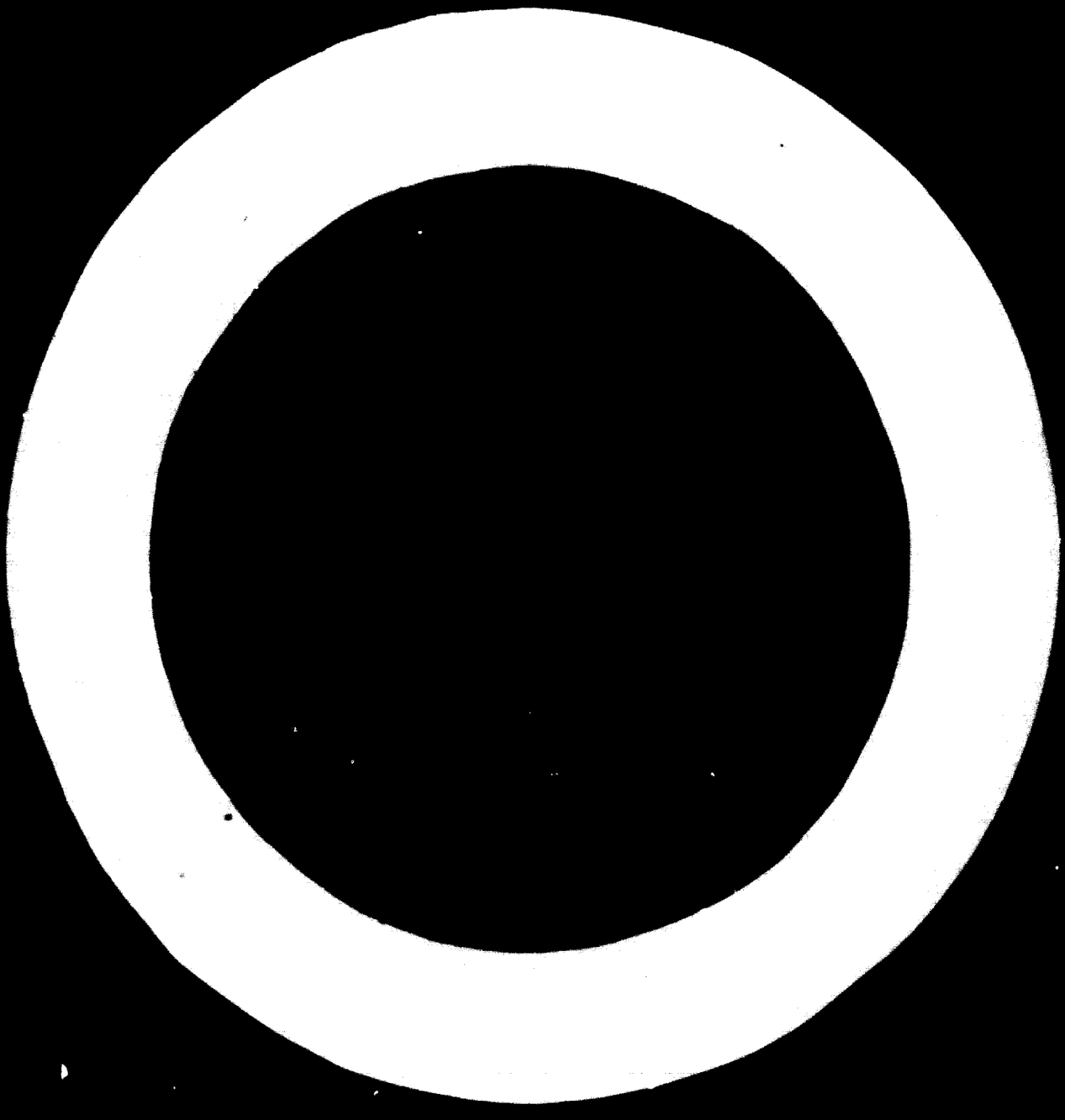
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org



REPORT OF THE INTERREGIONAL SYMPOSIUM ON INDUSTRIAL PROJECT EVALUATION

PRAGUE, CZECHOSLOVAKIA

11 to 29 October 1965

UNITED NATIONS

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ANNEXES

INTRODUCTION

1. The Interregional Symposium on Industrial Project Evaluation sponsored by the United Nations, in co-operation with the Government of the Czechoslovak Socialist Republic, acting as the host, was held in the Valdstejn Palace in Prague from 11 to 29 October 1965. It was the first international gathering exclusively devoted to the consideration of issues and problems in industrial project evaluation.

2. The formulation of sound projects is of great importance in industrial development under any economic system. Careful and systematic scrutiny of proposed projects based on a thorough investigation of their economic and technical feasibility is indispensable in selecting viable projects, and in committing financial and technical resources to them. Industrial project evaluation is particularly important in developing countries because of the need to use the limited resources available to maximum effect in accelerating industrial development. This Symposium therefore constituted the first stage of a sustained programme of research, training and technical assistance in the field of industrial project evaluation initiated by the United Nations Centre for Industrial Development (CID) and forms an indispensable and important part of the continuing effort of the CID to assist developing countries in promoting and accelerating industrial development. The recommendations of the Symposium for this programme are outlined in chapter I.

3. Participants from thirty developing countries in Africa, Asia, Europe, Latin America and the Middle East attended the Symposium on a fellowship basis under the sponsorship of the United Nations Bureau of Technical Assistance Operations. They were senior officials who have been actually involved in the task of industrial project analysis or industrial programming in their respective national governments or institutions. In addition, there was substantial representation of other countries as well as of regional organizations, national financial corporations and planning organizations. Many specialists in the field of industrial project evaluation also attended the Symposium as observers. The Symposium was serviced by officials of the United Nations Secretariat and five United Nations consultants. The total attendance was 101. A list of all participants is given in annex IV.

4. The agenda of the Symposium was divided into the following four main items, each of which is discussed in a separate chapter in this report:

A. Preliminary steps in setting up industrial projects;

B. Considerations in evaluation of industrial projects

C. Follow-up and supervision of industrial projects, and

D. Survey of country experience

The four main items were subdivided into thirteen sub-items as listed in annex I.

5. The Symposium examined all relevant aspects of industrial project evaluation. The relation of the proposed project to the general strategy of industrial development, essential elements in the preparation of a project, data and other information required for, and institutional aspects of, industrial project evaluation were dealt with under item A. The examination of item B which represented the core of the discussion included the issues and problems connected with commercial profitability and national economic profitability, inter-industry linkages,

managerial and technical skills, etc., survey of current practices and theories in the field of industrial project evaluation, pricing problems with special reference to foreign exchange and foreign trade considerations and financial planning and its appraisal. The various procedures and tools required for the follow-up and supervision of approved projects were surveyed under item C. The account of the criteria and methods of industrial project evaluation followed in developing countries, case studies illustrating them and the problems encountered in the evaluation of industrial projects were highlighted in the course of the discussion of item D. This discussion helped to clarify the scope of improving existing evaluation procedures and practices in the developing countries and to formulate the programme of research, training and technical assistance recommended, including also guidelines for the future work of the Centre of Industrial Development.

6. The participants had at their disposal substantial documentation consisting of 117 papers dealing with the various items of the agenda. There were forty-nine papers dealing with country experiences and case studies providing information on existing practices and procedures of industrial project evaluation in developing countries. The rest of the papers dealt with various aspects of industrial project evaluation prepared by individual experts, regional and national organizations and the United Nations. The documentation dealt with simple as well as highly sophisticated techniques of industrial project evaluation suitable for countries at different stages of development and with different economic systems, indicating the leeway to be made up by the developing countries in this field. The documentation thus represents an important source of information and knowledge and is expected to be directly and immediately useful to all persons engaged in evaluation of industrial projects. 1/

7. The participants had useful discussions with the representatives of the State Commission for Investments, State Planning Commission and the State Designing Organizations of Czechoslovakia. These discussions gave the participants the opportunity to acquaint themselves with the practices and procedures of industrial project evaluation followed in Czechoslovakia.

8. The organization of the Symposium consisted of the over-all Chairman, chairmen for the major agenda items and eleven panels for guiding the discussion of the agenda sub-items. The names of the officers are given in annex II. In addition, United Nations staff members served as the Director, the Administrative and Financial Officer, the Secretary and the Rapporteur of the Symposium. There were also five United Nations consultants.

9. The Symposium was inaugurated by Mr. Jan Piller, Deputy Prime Minister and President of the State Commission for Investment of the Czechoslovak Socialist Republic. His address was followed by the statement of the Director of the Symposium. Messages were read from the United Nations Commissioner for Industrial Development and the United Nations Commissioner for Technical Assistance. This

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1/ The list of reference documentation is given in annex X.

was followed by the election of officers, adoption of the agenda and the opening address by the Chairman. 2/ All the proceedings of the Symposium were conducted in plenary sessions.

10. The technical facilities for the Symposium were managed in a very efficient manner by the Organizing Committee of the Government of the Czechoslovak Socialist Republic. 3/ The untiring efforts of the staff of the Organizing Committee were a major factor in the successful completion of the work of the Symposium.

2/ The texts of the opening addresses are given in annexes V - IX.

3/ The list of the members of the Organizing Committee of the Government of the Czechoslovak Socialist Republic is given in annex III.

I. CONCLUSIONS AND RECOMMENDATIONS

11. Participants examined the various items of the agenda against the background of the specific goal of developing countries to accelerate their industrial development. Understanding of the proper criteria and techniques of project evaluation was considered vital to the realization of this objective. In this context, the Symposium made a comprehensive review of the state of the art, and, in particular, the experience of developing countries in industrial project evaluation, including a survey of the organizational framework available for project evaluation and an account of different criteria used and the techniques adopted in their application. In the course of the deliberations, several issues and problems were highlighted and general conclusions and specific recommendations were arrived at.

12. The considerations applied in evaluation of industrial projects in different developing countries varied in accordance with the availability and quality of data and other information, skills of the personnel and computing facilities, which were largely a reflection of the different stages of their development. It was agreed that there was a wide scope and an urgent necessity for improving existing practices and procedures of industrial project evaluation in all developing countries. It was also evident that there was no single, uniform set of criteria and techniques that can be applied in all developing countries. Criteria adopted in developing countries would depend on the development goals and relative weights attached to them, while techniques of their application would depend mainly on data, skills, computing facilities, etc. on the one hand, and economic systems and the forms of planning and stages of development on the other. It was against this background that the conclusions and recommendations were formulated. 1/

A. General conclusions

13. An industrial project should be evaluated within the framework of the general strategy of industrial development which, in essence, means the formulation of industrial priorities for a given period of time. These priorities should take into account potentials for import substitution as well as export promotion. Industrial sectoral programmes should be elaborated on the basis of these priorities. Internal consistency is of vital importance in formulating and co-ordinating the sectoral programme. In examining the relation of the proposed project to other projects, two types of relationship, i.e. competitive and complementary should be distinguished and carefully appraised.

14. Appraisal of a project as well as its success depends partly on the thoroughness and the reliability of the project preparation which must necessarily include exhaustive investigation of its technical, economic and financial feasibility. In addition, a project report should point out how the proposed project fits in with

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1/ This section of the report presents a brief account of the main general conclusions and specific recommendations. A detailed account of conclusions and recommendations will be found in subsequent sections dealing with specific items of the agenda.

the broad national objectives and the development programme of the country and should entail various uncertainties and margins of error in estimating costs and benefits. Although blueprints and construction schedules are a part of the final (engineering) project report, the choice of a well-tried and commercially successful process of production and provisions for sound designing of the plant and scheduling of construction at a minimum cost should be clearly defined in a project report.

15. A project report should incorporate comprehensive data and other information on private and social costs and benefits, foreign exchange effects, engineering and financial aspects, availability of technical know-how, availability of, and arrangement for, training technical managerial personnel, infrastructural requirements, inter-industry effects, arrangements for the even flow of raw materials, intermediates, components and spare parts, retooling and servicing facilities etc. The degree of details and comprehensiveness required may vary with the size and complexity of the project.

16. The systematic assessment of the data and other information contained in project reports requires a wide range of skills, especially in the fields of engineering and technology, economics and accountancy and financial planning specifically conceived for project appraisal. It was recognized that there was a shortage of those skills in developing countries as well as limited facilities for imparting such skills.

17. The Symposium considered that there were certain issues pertaining to the functions of evaluating agencies and their organizational set-up which required further research. These issues are mentioned in the next sub-section of this chapter.

18. Commercial profitability alone is not a sufficient criterion in developing countries seeking accelerated industrial development. National economic profitability occupies a central place in various considerations applied in appraising an industrial project in developing countries. This is especially true in conditions of inflationary pressures, generated by the development process where most of the proposed projects may appear commercially successful.

19. Three methods, i.e. discounted cash flow method, pay-back or recoupment period and average return on investment are available for estimating commercial profitability. In selecting different methods of estimating commercial profitability in developing countries, the earning streams at different points of time should be taken into consideration.

20. The vital importance of national economic profitability arises from three sets of factors. First, the market mechanism in developing countries (and even in developed countries) does not always reflect relative scarcities and consequently true social costs of various inputs. Market prices should not, therefore, be relied upon to allocate resources among various projects. The official exchange rate represents not infrequently an overvaluation of the currency. The market wage rate in economies with surplus labour does not reflect accurately social opportunity cost of labour. The prevalent rate of interest often does not reflect the relative

scarcity of capital - the productivity of capital investment. National economic profitability is designed to correct such distortions in input prices. Secondly, commercial profitability as conceived by a single entrepreneur, does not necessarily take into account various development objectives, such as accelerating the rate of growth, expansion of employment opportunities, reduction of inequality among various income groups and regions, etc. These objectives are only partially complementary to one another. It is therefore necessary to attach relative weights to the defined objectives. Thirdly, the rate of interest in perfectly competitive conditions is supposed to represent the time preference of the community attaching relative weights to present consumption compared with future consumption. However, perfectly competitive conditions are not to be found in any country, least of all in developing countries. In addition, in developing countries seeking to accelerate development, the vital issue of deciding the social time preference between present and future consumption cannot be left to the market mechanism.

21. The functions of attaching relative weights to defined development objectives and attaching relative weights to the contributions of these objectives belong to the highest planning and political authorities of the country. The tasks of evaluating agencies or departments in this context are two-fold. First, it is necessary to emphasize to these authorities the importance and imperative necessity of making these judgements without which it would be impossible to measure and assess adequately the national economic profitability of the proposed project. Secondly, the evaluating agencies should formulate alternative values of these weights in the light of the broad policy objectives and should spell out their economic consequences.

22. Given these weights, it is operationally feasible to assess and measure adequately the national economic profitability of the proposed enterprise. The introduction of the measurement of national economic profitability will be a major advance in improving evaluating practices in developing countries.

23. In addition to measurement of commercial profitability and national economic profitability, there are other important considerations in the evaluation of industrial projects which may or may not lend themselves easily to quantitative measurement. One of these considerations is the inter-industrial aspect or linkage effects. It includes on the cost side new supporting or servicing facilities, particularly infrastructural facilities, such as transport and power, that may be required. On the benefit side, the output of the proposed project may meet the input needs of some other industries or sectors of the economy. In addition, the proposed project may give rise to new economic activities in the form of either forward or backward linkage.

24. The importance of carefully evaluating the required technical and managerial personnel for the proposed project arises from the fact that the realization of expected results depends on the efficient operation of the enterprise. This appraisal consists of the assessment of the manning table of the proposed projects, scrutiny of the organizational plan and the examination of the availability of skilled personnel, arrangement for training of nationals, and hiring of foreign experts on a temporary basis and their respective costs. This appraisal is especially important with regard to functional managerial cadres (e.g. production manager, sales manager, etc.).

25. The shortage of skilled personnel in several developing countries is a serious limiting factor to industrialization. This can be solved satisfactorily only on the basis of long-term planning of human resources. The available evidence indicates that there is a direct relationship between the value added per employed person in a given industry and the skill composition of the work force in the same industry. This relationship worked out on the basis of international comparative data and long-term industrial sectoral programmes may be employed to forecast the types of skills required for various industries in the future. Measures can be devised to adapt and expand facilities for formal education, vocational training, in-plant training, etc. to meet these demands.

26. It is possible and necessary to evaluate the contribution of the proposed project in accumulating technical know-how and in creating a pool of managerial and technical personnel capable of operating other projects with similar production processes. For this purpose, it is helpful if industries are classified on the basis of production processes.

27. The issue of the choice of location of industrial plants is complex and is inevitably intertwined with issues of regional and urban development. It therefore needs to be discussed in a separate seminar or symposium.

28. It is also necessary to take into account other considerations such as health of operative, safeguards against accident, air and water pollution, etc. The minimum standards for them are, or should be, laid down by the government in the form of legally binding obligations.

29. Accounting prices are an instrument for applying the criterion of national economic profitability. It may be advisable, pending additional research and accumulation of experience and data, that the developing countries should adopt partial solutions, or working out accounting prices by means of very simple methods for only those inputs (e.g. foreign exchange and capital) which are in acute short supply.

30. The evaluation of industrial projects in inflationary conditions remains unaltered if the relative rate of increase in all prices is uniform. However, if there is a change in the composition of relative prices under inflationary pressures, prices based on forecasts of changes in relative prices for important commodities and services should be used in working out cost-benefit ratios.

31. It is important to take into account foreign exchange cost and earnings in the evaluation of industrial projects. In making these estimates and calculating net foreign exchange earnings or savings, it is often advisable to use an accounting foreign exchange rate instead of the official foreign exchange rate.

32. The objective of the systematic follow-up is to check that the project follows agreed lines. Since no project is likely to follow forecasts exactly because of changing conditions, a follow-up should be made in a continuous, limited re-appraisal of the project in the course of implementation. Two issues arising from follow-up deserve careful attention: the commercial success (or failure) of a project is not necessarily a valid guide to its success (or failure) in

achieving national economic objectives; and a project may earn a satisfactory or even a high return in certain local conditions even though it is operated inefficiently.

B. Specific recommendations

33. The comprehensive documentation prepared for the Symposium represents a major source of knowledge and information on issues, problems and practices in the field of industrial project evaluation. The Symposium therefore suggested making available at least one set of all documents to each development finance agency, planning agencies and other evaluating agencies engaged in evaluation of industrial projects in developing countries. There is also merit in bringing out as soon as possible a publication of selections from this documentation, with a sufficient number of copies to meet the needs of all development agencies and educational and training institutions.

34. The deliberations of the Symposium brought forth the following issues in industrial project evaluation on which further research and investigations were felt to be highly desirable:

(a) Factors underlying the formulation of the general strategy of industrial development for developing economies at different stages of development and with different sizes of domestic markets,

(b) Methodologies of sectoral (branches of industry) industrial programming, evaluation criteria for sectoral programmes, evaluation techniques for individual projects within the setting of the sectoral targets, and elaboration of capital and other input coefficients for the principal branches of industries as a tool of sectoral programming,

(c) Functions and organization of work of evaluating agencies with special reference to their responsibility regarding project development and implementation;

(d) Comparative evaluation of the period of recoupment or pay-back period and discounted cash flow methods in estimating commercial profitability;

(e) Pilot studies in co-operation with developing countries in the application of the criterion of national economic profitability;

(f) A study clarifying the role of value judgements in the calculus of national economic profitability and relationship between these judgements and the possibilities for fulfilling different objectives;

(g) Treatment of uncertainty in the evaluation of industrial projects and possible solutions;

(h) Methods of evaluating management, requirements and standards for the proposed projects;

(i) Required skill patterns for sectoral (branches of industries) development programmes or projections;

(j) Pilot studies designed to test the suitability of alternative techniques of using accounting prices in developing countries;

(k) The use of international prices for inputs and outputs and other methods for evaluation of export industry projects with a view to integrating them in international specialization; and

(l) Studies on follow-up practices in countries with different economic systems.

35. The gap in the literature on industrial project evaluation points to the need for a manual on industrial project evaluation which could be used by evaluating agencies and educational and training institutions in developing countries. The following considerations should be taken into account in the preparation of the manual:

(a) The manual should deal with all the important practical issues covered at the Symposium,

(b) The distinction between criteria and techniques of their application should be clearly made,

(c) Complementarity and competitiveness between different criteria should be brought out,

(d) A number of techniques or methods of varying degrees of complexity for the application of each criterion should be presented so that the evaluating agencies can select that which suits the specific conditions of the country,

(e) The relationship between the refinement of the techniques and the availability and reliability of data should be clearly stated;

(f) The scope for the quantitative measurement of each dimension of industrial project evaluation, including the attainable degree of precision in the measurement, should be indicated;

(g) Aspects of evaluation which do not lend themselves easily to quantitative measurement and in which the judgement of evaluating agencies becomes a major instrument of appraisal should also be clearly indicated,

(h) The limitations of each technique should be specified,

(i) Techniques of applying the criterion of national economic profitability should receive special attention in the manual;

(j) The manual should concentrate on those aspects of industrial project evaluation which are common to all industrial projects;

(k) The detailed suggestions made in the subsequent sections of the report dealing with specific items of the agenda should also be taken into account.

36. The most effective way to improve existing practices and procedures of industrial project evaluation in the shortest possible time is through the organization of training workshops at national or sub-regional levels in developing countries at their request. The basic objective of these workshops is to train a nucleus of local personnel who can apply improved practices and procedures in evaluating industrial projects. In organizing these workshops, the following considerations should be taken into account:

(a) The officers attending the workshops should be those who are actually responsible for evaluation of industrial projects;

(b) The number of persons attending the workshop should be small enough so that each individual can receive personal attention;

(c) Three different types of skills, viz. engineering and technology, accountancy and planning at the project level, and economic analysis are required in evaluation of projects. It is therefore useful to ensure that officers with a background in each of these skills are represented in national workshops. In the case of sub-regional workshops, officers from participating countries should also have the necessary background in each of these fields;

(d) The training courses should be specially adjusted for each workshop, taking into account concrete conditions in the country or the sub-region. The courses should be agreed upon by the country or countries requesting the workshop. Training courses should concentrate on actual techniques with specific illustrations that can be readily put into practice by the participants in the workshop. The techniques of working out national economic profitability should have an important place in the training courses;

(e) At least two studies should be prepared, one dealing with simple mathematical methods used in project appraisal and another explaining basic concepts used in project analysis and economic rationales underlying them for those participants in workshops who have not specialized in these fields;

(f) The training workshops for industrial project evaluation should become a continuing programme for the benefit of developing countries. The experience of each workshop should be utilized to improve the work of the subsequent workshops.

37. There is a shortage of trained personnel who can adequately perform the task of industrial project evaluation in many developing countries. The training of local cadres for this purpose and accumulation of experience by them will take considerable time. In such countries, technical assistance experts should be sent at the governments' request to assist local personnel in evaluating industrial projects, and to assist wherever required in establishing evaluating agencies or departments.

38. A separate seminar or symposium on the complex problem of the choice of location for industrial projects should be organized at the earliest possible date. Its agenda should give special attention to the problems of location of industries in developing countries in the context of regional economic integration schemes.

39. Many developing countries experience difficulties in identifying investment opportunities and formulating sound and comprehensive project reports. This limits the choice of projects from which the evaluating agencies can select those most profitable. It is therefore urgently necessary that developing countries be assisted in training cadres and establishing local institutions so that projects may be identified and formulated on a continuing and systematic basis. It may be emphasized that some evaluation criteria are also implicit in the identification and formulation of projects, since projects are formulated and submitted to evaluating agencies with an expectation of approval. Since the formulation of projects consumes resources as well as time, both of which need to be economized in developing countries, it is necessary that persons and institutions responsible for formulating projects have a clear understanding of the criteria which will be applied by evaluating agencies in their appraisal. This is especially important from the viewpoint of the criterion of national economic profitability in its broad sense.

40. The follow-up of approved projects in developing countries has been impeded by difficulties in the construction of projects in the form of delays in the planned time-schedule and overruns in costs. One of the most effective means of overcoming these difficulties and reducing costs and time in the construction of projects lies in the use of network theory including critical path method in planning and implementing construction of projects. Further research in this field is needed, preferably with the help of pilot studies of the actual use of such methods with a view to finding out its operational feasibility in developing countries.

II. PRELIMINARY STEPS IN SETTING UP INDUSTRIAL PROJECTS

Relation of projects to the general strategy of industrial development (agenda item A.1)

41. Due to the high complexity of the relationship between project evaluation and selection and the broad framework of basic choices made by the plan - frequently called the strategy of development - as well as to the limited time available, the discussions have not led to a firm and well-defined consensus of ideas in this field. However, a few points have been stressed and some suggestions for future international action have emerged. These suggestions for future action are stated in paragraphs 54 and 55 below. In brief, the main points raised and discussed related to the central problem of adapting the efficiency criteria to fit an over-all planning strategy and to the means which could be used to support the sectoral approach, both at the planning stage (developing adequate methods for planning the relative development of the different sectors of the economy and branches of the manufacturing industry) and at the policy and implementation stage (through industrial sectoral development programmes). The main ideas presented in the papers as well as in the discussions that followed, are summarized in the following paragraphs.

42. A broad consideration of the subject dealt with the analysis of interrelations between individual projects and over-all and sectoral development plans, as well as with the problem of introducing consistency and efficiency at the sectoral level of planning. The efficient use of available resources was considered as one of the basic targets of economic development. There are different economic methods designed to promote the efficient use of resources, the most important of which is the formulation and evaluation of projects, permitting the selection of those most economically advantageous and the planning of economic development on a regional, sectoral or over-all national economic scale. Project evaluation and development planning are closely related and supplement each other. On the one hand, projects are to be evaluated in their relation to the rest of the economy, while development planning provides the general framework for the analysis of their consistency and efficiency. On the other hand, project evaluation may be considered as the concluding stage of the medium and long-term planning process. This planning starts with an analysis of past and forecasts of future developments, followed by an investigation with a view to arriving at an equilibrium of requirements and availabilities (checking of consistency) and concludes with a determination of the most rational allocation and use of resources and of the projects to be implemented.

43. There is difficulty, however, in applying efficiency criteria for the selection of sectoral goals of planning. The theoretical approach would be to evolve a complete programming model for the economy as a whole, but this, because of lack of appropriate data, among other reasons, is difficult to carry out even in developed countries. An interesting short-cut method applied in one country consists of a simplified version of the input-output approach, based on capital coefficients and other coefficients for each branch of industry. This method was intended to analyse and compare the advantages and disadvantages - in a special and limited sense, the efficiency - of the development of individual economic branches of industry with a view to evaluating aggregated and more complex economic

branches rather than individual projects. However, this method has not fully matured and must remain for the time being only a "short-cut", which does not intend to solve entirely by means of efficiency criteria the central problem of the allocation of resources among sectors, and must still depend on the application of rough criteria generally falling within the purview of the strategy of industrial development.

44. In discussing alternative strategies of industrial development, the Symposium considered the higher prospects of industrialization that the regional economic integration approach opens to the developing countries. In view of the small size of national markets in most of these countries and of the unfavourable comparison of such markets with the minimum economic size of plants in the majority of the modern branches of industry, including those which produce consumer goods of relatively simple manufacture, the exploration of possibilities for integrated development schemes is seen as a first and, perhaps, mandatory stage in the formulation of industrial development strategies. Reference, in this respect, was made to the tendency of the more traditional industries, using simpler manufacturing processes, to become more and more capital intensive as a result of the technical innovations taking place in the developed countries and spreading all over the world. The textile industry, for example, is a branch of industry which represents for many new countries the starting point towards industrialization. In this industry, recent technical developments have increased the fixed capital required per person employed to the level of some $17,000, an amount that exceeds the ratio observed in many metal-working industries as well as in some chemical industries, traditionally more capital intensive than the consumer goods industries. The impact of this trend on the industrialization of the new countries is likely to be negative, since the capital requirements increase in disproportion to their financial means and saving capacity.

45. Against this background of an increasingly complex and expensive industrial technology, the Symposium considered that the regional economic integration approach should be taken as an indispensable tool at the disposal of the developing countries for the shaping of their industrial development strategies. This integration approach, however, should not be limited to specialization between countries for specific industries, but should also be designed as part of a broader policy of general co-ordination in resource utilization and in economic policy-making.

46. The importance of strategy considerations in setting a framework for the evaluation and selection of isolated investment projects may be seen in an examination of the two main aspects in which a strategy of industrial development is currently defined in Latin America. These aspects include a policy of location of industrial activities and a policy of sectoral development. More and more attention is being paid in Latin American countries to the adoption of a location policy, at the national level, that counteracts the tendencies for concentration of industries in a limited number of development poles. This policy consists of various incentives and disincentives, depending on the particular countries applying them, but in every case it implies a subordination of efficiency criteria in the selection of investments to more general and less quantifiable locational criteria. In this case, the role of profitability criteria in relation to the location policy is that of quantifying the amount of product that such a location policy sacrifices for the sake of the social goal of balanced industrial development, at the national level.

47. The problem of location is further complicated when it is raised to the regional (multi-national) level, as it is nowadays in Latin America. The gradual introduction of a Latin American common market, to be implemented at a faster rate in the industrial field, makes more urgent the problems of finding the proper criteria for investment evaluation and selection. How can the regional (multi-national) locations be defined in the framework of a common market? What contribution to such location policy is to be hoped for from the efficiency criteria normally applied to individual projects? Work being done by the Economic Commission for Latin America (ECLA) in this field observes the following sequence. First, the profitability of specific industrial activities in alternative locations in Latin America is ascertained as a function of factor prices in each location, of economies of scale and of transport costs. Next, an adjustment to the previous scheme is made, on the basis of national objectives regarding industrial investment as defined in the corresponding industrial development plans and considered by the national planning authorities to be an indispensable condition for the achievement of a well-balanced and sound industrial structure. Finally, another adjustment is made, designed to introduce an equilibrium among the participating countries in the distribution of benefits to be derived from the integration of their economies (economies of scale, increase of exports, promotional effects, etc.). All of the above introduce important constraints which stand in the way of a full resort to conventional project evaluation and selection criteria as an instrument for resource allocation in a common market of under-developed economies.

48. The second element of an industrial strategy - the policy of sectoral development - also showed the importance of a priori decisions of a global nature. The reasons alleged in this respect ranged from uncertainty of physical inputs to interdependency of the projects to be promoted.

49. Uncertainty affects project preparation and evaluation in different ways. One of these is the problem of future efficiency levels which must be taken into consideration when preparing a project, especially when previous experience and existing industry in the country does not provide a sufficient basis for reliable estimates. Latin American industry, particularly in branches applying discontinuous processes, such as metal-transforming and textiles, is characterized by efficiency levels that are frequently low and vary widely from enterprise to enterprise. The question then arises as to what levels of factor performance should be acceptable in the preparation of new projects. The solution would lie, it was suggested, in the adoption of a given level of operational efficiency and in the detailed specification of performance requisites, the viability of these conditions being ensured concurrently with the execution of the individual project under consideration through a sectoral development programme. This implies a movement from the individual project level to the programme level for a group of relatively self-supporting enterprises or for a whole industrial branch. Such a sectoral programme, as it may be called, covering the establishment of basic conditions external to the enterprise thus becomes as important for the success of the project to be evaluated as are its internal characteristics, or more so. The preparation of individual projects within sectoral programmes and their evaluation from the profitability standpoint is, nonetheless, of basic importance, as a means of ensuring full and rational planning of each undertaking, rather than as the main criterion in final decision making.

50. The conclusion that emerges is that it is essential to link the procedures for project preparation, evaluation and selection to an explicit and operative concept of industrial strategy as part of a development plan or programme. An alternative strategy of industrial development providing a basis for the preparation and financing of industrial projects has been discussed in the light of the following considerations:

(a) Industrial development projects are designed to serve the needs of the internal market and not (as a general rule) to create a flow of exports;

(b) The goods to be produced are preferably consumer goods (non-durable and durable) and semi-finished products necessary to the new consumer goods industries;

(c) The needs to be served are, preferably, those already existing and being satisfied through imports, i.e., projects are to be import-substitution oriented

(d) There will be a preference for regional or sub-regional industrialization schemes, that is to say, the design of enterprises will serve groupings of two or more countries, on the basis of a comparison between a reasonable economic size of the enterprise and the size of the market in individual countries.

51. The advisability of orienting the industrial development of a new region in accordance with a too rigid import-substitution policy disregards, in the view of many, the new possibilities for export promotion open within the framework of the United Nations Conference on Trade and Development. The choice of import-saving projects on the basis of the national market has various disadvantages:

(a) Developing countries following this line would soon be faced with an unexpected and possibly acute shortage of foreign currency due to the frequently high import content of the newly manufactured goods (raw materials, spare parts and components, etc.). Close attention should be paid to these indirect effects. Some industries aimed at export should be therefore implemented parallel with the above industries to help offset such results;

(b) The fixing of production capacities on the basis of the internal market demands at the time of project evaluation is dangerous in two ways. It is generally based on past import figures which, if available, are generally misleading and do not represent future demand. The capacity arrived at is normally below the economically justifiable figure, hence small-scale techniques of production are bound to be applied resulting in higher production costs. On the other hand, the sudden rise in demand resulting from industrialization will necessitate an expansion in production within a relatively short period,

(c) Such an approach excludes those industries that should be implemented on a wide regional basis quite successfully, since any one country in the region would not have a sufficient national market to justify such projects.

52. The approach which consists of giving secondary importance to projects in infrastructure appeared to some participants also to be dangerous in developing countries where industrial development is considered a tool for national betterment.

This approach would invariably impose on any industrial project the additional burden of financing ancillary infrastructural projects, such as having to provide its own electric generating plant, its own transportation fleet and may even involve the financing of residential areas whenever the location of the factory necessitates it. This situation would put industrial development at a big handicap and would curtail development rather than encourage it.

53. Finally, a note of warning was sounded on the need for a solid institutional foundation as a pre-condition for an effective industrial project implementation The fragility of all efforts at project preparation and evaluation must be reckoned with if the institutional framework and the environment in the largest sense of this expression were not well defined and made adequate to the development needs of each particular country.

54. Taking into consideration the special emphasis given during the discussions to those problems associated with development programming and project evaluation both at the sectoral (branches of industry) and industrial enterprise level, the Symposium thought it advisable to recommend that as much attention as possible be devoted to research on:

(a) The methodology (or alternative methodologies) of sectoral (branches of industry) industrial development programming;

(b) The problems arising out of the utilization of profitability criteria for sectoral evaluation and selection, as well as the role of evaluation and selection of individual projects in setting the sectoral targets;

(c) The elaboration of capital and other input coefficients for the main branches of industry, as a useful tool for sectoral programming, specially for countries with limited industrial experience, as well as a yardstick for broad international comparisons.

55. Bearing in mind the close attention paid during the discussions to the problems of location of industries in the evaluation and selection of industrial projects and the increasing relevance of this matter in the industrial development strategy of under-developed countries, as a result of the formation of common markets and other forms of economic unions all over the world, the Symposium decided to recommend:

(a) That a symposium on location of industries be convened at the earliest possible date; and

(b) That the corresponding agenda be so arranged as to devote special attention to problems of location of industries in the context of regional economic integration schemes, as well as to project evaluation in the same context.

Essential elements in the preparation of industrial projects (agenda item A.2)

56. The papers presented revealed that in developing countries, integrated economic development planning and programming have generally been undertaken with a view to achieving economic self-sufficiency. The plan documents set down guidelines for domestic consumption and indicate economic and fiscal policies for realizing domestic savings and resources - both indigenous and foreign - required for achieving the investment targets indicated therein. However, the objectives of the plans can be achieved only through implementation of worth-while projects which results in the effective allocation of investment resources.

57. The discussion under this item dealt with the studies and investigations which constitute the essential elements in the process of project preparation. These studies should be so designed as to enable the various agencies interested in the project, including planning authorities, financing institutions, those responsible for constructing the project and those operating it, to follow the project through the stages of evaluation to the final stage of operation or even to the end of its working life. It was, therefore, emphasized that one of the essential conditions for the success of a project was the thoroughness and reliability of project preparation which would normally take the form of a feasibility report. The investigation in regard to market demand, construction cost estimates and resource requirements should be undertaken with a view to minimizing any loss that may have to be incurred as a result of abandonment or cancellation of a project. It was further emphasized that before a detailed project report was prepared, which in itself would be costly, a preliminary feasibility study of the project, based on readily available information, should be phased. The final project report, on the basis of which the project would be evaluated for implementation and financing, should be sufficiently comprehensive, giving evidence of its commercial, technical and financial soundness in harmony with the national policy.

58. The economic or commercial feasibility of a project depends on its ability to market its products and earn revenues which will exceed its cost of production, after taking into account the subsidies and benefits to which it is entitled as well as the taxes it is liable to pay. This will require thorough market surveys and an assessment of the performance of competing units. A danger to be avoided in market assessment, even greater than that of over-estimation of demand, is the failure to take into account the natural growth of the market in a developing economy and to design the plant on a scale too small to meet the prospective market demand. Careful consideration should also be given to the desirability of designing the plant in such a way that production capacity could be expanded when justified by the market, by simply adding the necessary equipment to secure maximum economies of scale.

59. In considering the technical feasibility of a project, the following essential aspects were, among others, indicated for special investigation:

(a) While selecting the plants and processes, it has to be ensured that they are suitable and entail the minimum risk of obsolescence and that alternative sizes have been examined before making the selection;

(b) The location of the plant should be selected by examining alternative sites with due regard to the availability of raw materials, utilities, labour, technical staff and market;

(c) The estimated cost of the project should be as low as any other reasonably available alternative which could produce the intended results. In estimating cost, all significant factors which will determine the total cost, such as costs in respect of equipment and construction, engineering design, supervision of construction, debt service charges including costs of working capital, over-heads, etc., should be taken into account.

60. It was further emphasized that the technical feasibility study should be made by independent experts in the industry concerned and that care should be taken not to entrust the job to interested parties.

61. While considering the cost of construction of projects, the Symposium noted with interest the activities of the Council for Mutual Economic Aid (CMEA), which has undertaken standard designing of buildings and structures with a view to introducing large-scale and serial production of prefabricated parts, as well as modern methods of building and erection, thus bringing about a considerable reduction in construction costs in the projects set up in member socialist countries. The progress in this regard should, it was suggested, be given special consideration.

62. In order to ascertain the financial viability of the project, in addition to estimating the prices and costs, it will be necessary to estimate the period of construction and adequacy of funds available, before the enterprise begins to generate its own funds, as well as its ability to service the debts during both the construction period and after the plant has been commissioned. These aspects, it should be recalled, are subjected to searching scrutiny by financing agencies when they consider the extension of financial assistance. The discussion revealed, however, that few projects were adequately prepared even when detailed guidance in the form of check lists and project outlines were provided. Requirements vary, but, typically, projects will be acceptable only when they are well defined and present evidence that all relevant technical, market and financial aspects have been given adequate consideration in their preparation and, further, that there is a high degree of probability that the venture will be profitable.

63. While preparing projects, careful consideration should be given to possible changes in economic policy and tariff and exchange rates, as well as to the various impediments in construction, securing of raw materials, etc., which are bound to arise in developing countries. Care should also be taken to ensure that estimates of capital costs, production costs and selling prices, which have a considerable influence on the success of the project and on its ability to compete in the local and foreign markets, are realistic. Unexpected increases in costs of plant, raw materials, construction and utilities would require larger investment than estimated, often affecting the profitability and consequently the viability and competitive capacity of the project. It was considered essential, therefore, that in estimating costs, adequate provision should be made for contingencies and errors of judgement to serve as a cushion.

64. The process of preparation of projects should also be directed towards attainment of the objectives in the national plan, such as providing employment and training of labour, earning or saving of foreign exchange, utilization of unused or under-used natural resources, contributing to the diversification of the economy. In short, evidence should be provided to indicate the project's economic and social desirability from the national standpoint.

65. The Symposium recognized that integrated implementation of development programmes presented a difficult problem for the developing countries and that this had not been given adequate attention. Dynamic implementation calls for close and continuous collaboration between planners and implementers in achieving efficiency and productivity at all levels and during all phases including the phase of preparation of the project. In this connexion considerable interest was evinced by the participants in the possible use of network theory including the critical path method in planning and programming for implementation of specific projects in the context of national development programmes, and it was urged that the concept of providing every industrial programme with a tentative "implementation network plan" be further explored. Such a tentative plan would provide the vehicle for smooth follow-up and supervision after completion of the feasibility study and evaluation of the project. The greater the uncertainties and lack of expert managerial skills, the greater was the need for an implementation scheme. Since various mathematical and operations research methods lend themselves to the formulation and evaluation of industrial projects as well as to finding solutions for the optimum choice among projects defined in terms of a number of economic and technological parameters, it was urged that research be carried out in this field with the aim of making available practical methods and techniques to suit the requirements of developing countries. The following suggestions were received by the Symposium for further consideration:

(a) A manual on network theory, including the critical path method for implementation planning and programming, should be compiled and published;

(b) The methodology of the theory should be applied on a pilot basis and literature on the experience acquired, published for the benefit of all countries;

(c) Basic criteria should be established for conducting relevant indigenous research for the application of modern management science and computer technology, and

(d) Further basic research with mathematical simulation models using electronic computers should be encouraged in industrially advanced countries focused on:

(i) Analysing the implications of uncertain and varying maturation periods,

(ii) Establishing criteria for the use of programme and performance budgeting based on the "master implementation network plan" and

(iii) Developing a cohesive theory for setting up and maintaining dynamic implementation systems and processes compatible with the rapid development aspirations of developing countries.

Requirements of data and other information for, and institutional aspects of, industrial project evaluation (agenda item A.3)

66. Inadequacy of domestic savings and shortage of foreign exchange, technical and managerial skills and raw materials constitute serious obstacles to the industrial development of most developing countries. Consequently, it was considered essential that these resources be put to the most productive uses possible. Appraisal of industrial projects should constitute a systematic evaluation of investment opportunities with a view to selecting projects which, apart from being attractive to the entrepreneurs, are also beneficial to the economy as a whole. The data and other information to be presented in support of the feasibility of a project should integrate the results of a thorough and expert investigation of engineering, economic, financial and other relevant studies and should be sufficiently detailed and comprehensive, consistent with the size and complexity of the project, to enable the evaluation staff to:

(a) Carry out a systematic examination of the data presented, both from the individual and national angles,

(b) Arrive at their own independent judgement about the validity of the assumption made and conclusions reached in the project report;

(c) Suggest improvements in the project, where necessary, and

(d) Eliminate unsound projects.

67. The various data and information required for evaluation of projects were considered and those listed in paragraph 74 below were inter alia found to be essential. Besides these, it was considered desirable to call for

(a) An estimate of earnings during the construction and operating periods;

(b) An estimate of sources and disposition of funds; and

(c) Projected balance sheets.

68. The critical aspects of evaluation of projects from the point of view of financing institutions were thereafter examined and the following, among others, were considered to be of special significance:

(a) Project reports, to be acceptable, should be prepared by independent and disinterested experts having up-to-date knowledge of technology and cost conditions; where reports were prepared by suppliers of plants, processes or construction services, further detailed investigation of the essential aspects of the project would be necessary.

(b) The suitability of the proposed location as compared to others required careful scrutiny having regard to the supply and service sources, the market and special cost advantages claimed.

(c) A thorough analysis of the size of the plant and suitability of the processes and technology was extremely important in any country, but even more so in a developing country where the market is often limited. An examination of the technical requirements and operating costs of plants of various sizes would be desirable, in order to ascertain whether the proposed plant was of the optimum size and would be justified by the existing and prospective market. It was also essential to ensure that equipment or processes proposed to be acquired were not obsolete or unusual, were well-known and had achieved commercial success. When the acquisition of a second-hand plant was proposed, an independent assessment and evaluation by a qualified specialist should be obtained to ensure that the plant will give service for a number of years and that the cost is reasonable.

(d) The problem of deficiencies in management and technical know-how in developing countries was often solved by collaboration between the local promoter and a foreign organization, which participates in equity. To be acceptable, the equity participation should be large enough to ensure the collaborator's real interest in the success of the project and that it did not merely represent the difference between the actual cost of the plant and the inflated price charged by him.

(e) In order to ascertain the viability of the project and its long-range prospects, the market claimed in the project report should be thoroughly investigated by reference to general and market statistics relating to the industry, where available, otherwise by conducting an independent market analysis. The investigation should involve assessment not only of the over-all balance between supply and demand for the product, but also an examination of the competitive capacity of the project in relation to other units producing the same or similar products. Account has to be taken also of the Government's industrial licensing, taxation and import-export policies, regulatory controls regarding production, prices, availability of raw materials, power, transport facilities, etc.

(f) In appraising financial aspects, it should be ensured that:

(i) The financial stake of the sponsors of the project was adequate to ensure their sustained interest in the success of the project

(ii) The ratio of debt to equity was healthy, so that in case of overruns or other difficulties the undertaking would be able to raise further resources; and

(iii) Adequate provision had been made inter alia for spare parts and components not readily available locally, repairs and maintenance of machinery, training of technical personnel contingencies, unforeseen expenses and escalation of prices, impact of inflation, and for troubles resulting in production below capacity in the initial stages, which is a general feature in less advanced countries. It would also be desirable to ascertain the break-even point which would indicate the cushion available against optimistic estimates and errors of judgement.

(g) It was also essential in a developing country to assess the extent of national economic profitability of projects to enable the evaluation staff to determine relative priorities. The following fundamental questions should be asked and answered in this connexion

(i) Whether the project would contribute effectively to the development of the economy and would provide training to local workers;

(ii) Whether it would enable the sound use of scarce resources, such as capital, skilled labour, natural resources, etc., or whether there were alternative and better uses of the available resources;

(iii) Whether the project, besides functioning as part of the existing economic structure by providing goods and services needed by it, would fit into the future pattern of economic development of the country, leading to new related investments in ancillary industries;

(iv) Whether the scale of operation chosen was appropriate to the requirements of the developing economy; and

(v) Whether, and to what extent, the project would have a favourable effect on the existing and future balance of payments of the country.

In answering the above questions, account should be taken of major interferences with competitive market forces in the shape of protective tariffs, artificial rates of interest, government controls, distorted foreign exchange rates, etc.

69. The Symposium agreed that effective project appraisal did not stop at the formulation of sound techniques of evaluation. The techniques should be so designed as to make the best possible use of a professional cadre composed of economists, accountants, engineers and lawyers. It was, therefore, necessary to consider the organizational set-up of the evaluation staff of development finance institutions and to consider ways in which these professionals would operate so that the institutions could make the best use of the scarce manpower at their disposal. The following were considered to be some of the significant issues involved:

(a) Did the professional cadre of the development finance institution have clear responsibilities for project development, evaluation and follow-up?

(b) Did the professionals work as a team in making an evaluation?

(c) Could the selection process be improved by strengthening its collective nature?

(d) Was the importance of follow-up recognized in the institutions's procedures, organizing and allocation of professional personnel and should a separate department for follow-up be created?

It was agreed that these and other related issues warranted further examination.

70. Systematic assessment of the data and information contained in project reports required a wide range of knowledge, skills and techniques not always found among the personnel in developing countries. It was felt that this vital element of industrial development had not received the attention it deserved and that there was a widely felt need for training facilities. The training of such personnel should be comprehensive and should reflect the responsibilities that they have to assume in relation to private and public interests, foreign and domestic investment and management of industrial programmes consistent with the nation's over-all economic development plan. There are a few training courses in existence at present, but these are far from adequate. In view of this, the Symposium strongly recommended that the present limited specialized training facilities be expanded by pooling the experience of existing experimental training programmes. It was also considered desirable to build up a library of simulation cases covering the full range of industrial development problems in developing countries for the use of all concerned.

71. The Symposium further endorsed the conclusions and recommendations formulated by the meeting of the Interregional Working Party on Problems of Training Industrial Economic Administrators, organized jointly by the United Nations and the Development Centre of the Organization for Economic Co-operation and Development (OECD) in September 1965 in Paris. The OECD was engaged in the preparation of a manual which, apart from serving as teaching material, would help in training and simplifying the work of officials in developing countries responsible for preliminary screening, as well as for managing and supervising the intensive studies following the preliminary screening and for compiling the necessary data for securing financial support. The Symposium was of the opinion that the proposed manual would fill a gap in the available literature on the subject 1/ and would complement the work of the United Nations Centre for Industrial Development.

72. In the context of data and other information required for appraisal of projects, the Symposium considered the possible use of synthetic indices. In order to evaluate an industrial project for its impact on the total economy and its complex interrelationship, it is necessary to use indices which are synthetic in character, and express in a composite form technical, quantitative and other indices. Such synthetic indices are based on, and expressed in terms of price and value. Indices of this kind facilitate the comparison of technical and quantitative indices, thereby simplifying the problem of comparative evaluation of industrial projects. Such a method, however, has to take account of the limiting factor created by the problems or prices themselves. Synthetic indices based on price and value require first a certain degree of stability in price relations. They have to take into account the changes in the price structure caused by the entry of new products and the effect of their prices on the prices of existing products. The time factor as it affects the project and its life cycle has also to be considered, as this factor will again be a very important determinant of the prices and value taken for the purpose of evaluation.

1/ ECLA's broadly conceived Manual on Economic Development Projects (United Nations publication, Sales No.: 58.II.G.5), remains a standard source reference, however.

73. In the evaluation of an industrial project, it is also very necessary to pay due attention to the rate of technical and technological progress. This would have a bearing on the economic life of the project, as technological innovations would generally lead to a decline in value insofar as they affect the project. This factor has, therefore, to be given a very important place in the preparation and design of the project.

74. Essential data and other information required for evaluation of projects are listed below:

(a) History, constitution and management

(i) History, nature of business, constitution, capital structure,

(ii) Annual accounts for the past five years (in the case of a going concern), with statements of outstanding liabilities for income tax, employees bonus, etc.,

(iii) Existing and proposed set-up of management with business experience and industrial background of promotors/top management personnel

(b) The project

(i) Particulars of the project

a. Detailed particulars of the project indicating whether it relates to:

i. New project, or

ii Modernization or expansion of an existing unit.

b. Copy of techno-economic feasibility report, indicating the source of data on which the report is based,

c. Time schedule of construction for major items of the project based on procurement of main items of the materials, supplies equipment and other factors relating to production.

(ii) Technical collaboration services

a. Names and addresses of technical collaborators, if any, with particulars of units, for which they have acted as collaborators, indicating their operations and industrial experience,

b. Alternatively, particulars of arrangement proposed to be made for obtaining technical advice and services needed for the project.

(iii) Manufacturing process, etc.

a. Details of the process to be adopted with justification for its selection as compared to alternative processes;

b. A flow chart showing the various stages of manufacture.

(iv) Location and particulars of land

a. Area, location, surroundings, availability of transport facilities and distances to sources of water, power, labour, raw materials and markets;

b. Justification for selecting the site in preference to other sites which were considered.

(v) Construction

a. Availability of cement, steel, water for construction materials, taking into account restrictions on supplies,

b. Availability of necessary engineering services for preparation of designs, specifications and contract document-evaluating bids, awarding contracts and supervising construction, indicating whether any special consultants or agencies are to be engaged and if so, their organization and background, and how they are qualified to assume the responsibility;

c. Lay-out of factory buildings, including provision for storage of raw materials and finished products;

d. Copies of soil test report and advice of consulting engineers/ architects, including details of climate and other conditions of site.

(vi) Equipment

a. Particulars of equipment to be acquired, giving names of possible suppliers, detail specifications as much as possible, competitive quotations, if available, and basis of selection, and indicating the estimated expenditure in foreign and local currencies, as well as whether any provision to cover escalation exists and, if so, up to what date;

b. Expected procurement and delivery schedules, supported by agreements, etc., with machinery suppliers;

c. Details of deferred payment arrangements, if any, with particulars of instalment payments towards principal and interest and of the arrangements made or proposed to be made for guaranteeing such deferred payments supported by copies of correspondence, arrangements, etc.,

d. Estimates of spare parts required and provision made therefor;

e. Copies of expected guarantees for satisfactory performance of equipment.

(vii) Capacity

a. The capacity proposed for each product line and justification for the proposed capacity;

b. The proposed installed capacity, number of working days, number of shifts to be worked, estimated production, output as percentage of planned capacity and sales.

(viii) Raw materials

a. Quantity, specifications, sources (indicating names and addresses of the principal trade suppliers) and availability of raw materials and semi-finished products. In the case of mining leases, proved reserves of minerals supported by copies of agreement for such leases and of experts' reports regarding reserves;

b. If semi-processed products are proposed to be obtained from another unit, the technical and economic soundness of that unit;

c. Estimated costs, including freight and insurance, customs duties, excise, etc., and agreements on price and delivery;

d. Assurance for uninterrupted flow of vital materials supported by details of firm arrangements made or proposed to be made with the suppliers.

(ix) Utilities

a. Requirements, sources, availability, cost and reliability of all utilities, viz. power, water, fuel, transportation etc. with arrangements for disposal of effluents;

b. Reasons for selection of sources.

(x) Operating organization

a. Description of organization which will manage and supervise the operations together with organization chart, present and projected;

b. Names, qualifications and experience of key management and technical personnel;

c. Number, qualifications and availability of required operating employees under the following categories:

i. Technical personnel,

ii. Skilled labour;

iii. Unskilled labour;

iv. Casual labour, if any.

d. Plans for recruitment and training of personnel and for maintenance of the plant.

(xi) Cost of the project - Detailed estimates of the cost, both foreign and local, the basis for the estimation of which must be explained and supported by authoritative data.

(xii) Means of financing - Details of how the outlay on the project is proposed viz. share, capital, loans, deferred payments, ploughed-back earnings, etc.

(c) Market

(i) Market trends

a. Market trends - both local and regional - during the past five years for each major product to be manufactured and closely related products, showing:

i. Domestic production;

ii. Imports and exports;

iii. Net local consumption and anticipated total demand for the next five years with names and addresses of principal customers and particulars of firm arrangements, if any, made or proposed to be made with them;

iv. Target capacity fixed under the national development plan, capacity and location of existing manufacturers, names of prospective manufacturers and progress made by them in implementing the relative schemes.

b. A copy of the report on indigenous market survey indicating the sources of data on which the survey is based;

c. Government price controls, import restrictions on competing products, raw materials etc., import duties, quotas and other regulations indicating whether, and to what extent, the sale of the product(s) to be manufactured will be influenced by them;

d. Extent to which the Government will waive or defer payment of direct taxes, excise or other duties or grant subsidies affecting construction and operation cost.

(ii) Competitors

a. Names, location, present output and expected future output, production costs and selling prices of present local competitors in the same field of production,

b. Prices of imported articles giving break-down under FOB, CIF, landed cost, duty payable (with rate) and selling price;

c. Information as to any known or anticipated changes in competition, such as expansions, modernization, new plants, new competing products, new processes etc.,

d. Information as to foreign competition and any anticipated changes in laws or regulations which might affect volume of imports,

e. Maximum expected selling prices ex-plant;

f. Competitive advantages of the proposed project showing:

i. Relative availability and cost of labour,

ii. Availability and quality of raw materials,

iii. Quality of products;

iv. Dependability of supply to consumers.

(iii) Commercial prospects

a. Schedule showing forecast for the next five years of volume of sales for the domestic and export markets, and the percentage of market claimed by the project, with justification and explanation,

b. Export possibilities and the nature of competition to be faced in foreign countries, indicating the prices of the products in countries where export possibilities exist.

(iv) Sales organization - particulars of sales organization.

(d) Production cost, selling prices and profitability

(i) Estimate of the unit cost of production of each of the major products, supported by detailed calculations;

(ii) Bases for wastage factors assumed for raw materials and of rejection rate assumed for finished product;

(iii) Full particulars of any tax, etc. allowances admissible and taken into account, such as exemption from, or deferment of, any general or specific taxes of products, including corporate or local taxes or any special depreciation allowances, rebates or duties, etc.;

(iv) Where the concern is producing the same or equivalent products in an existing plant, the production cost for the last five years and estimates for the subsequent five years in the same form;

(v) Estimates of sales and profitability explaining the rationale of the selling price assumed and detailed working of sales realization. Sources and utilization of funds during construction and normal production.

(e) General

(i) Estimate of net foreign exchange earnings from exports or foreign exchange savings from reduced imports, if any;

(ii) Extent to which the project will make use of under-utilized or unused natural resources, directly or indirectly;

(iii) Extent to which new jobs will be created as a result of the project, directly or indirectly;

(iv) Priority allocated to the project under the national development plan,

(v) Prospects of new related investments in ancillary industries;

(vi) Any other advantage of national importance likely to accrue from the project.

III. CONSIDERATIONS IN EVALUATION OF INDUSTRIAL PROJECTS

Criteria for industrial project evaluation (agenda item B.4)

Commercial profitability and national economic profitability (B.4.a)

75. The Symposium was in general agreement that the principles appropriate to project evaluation from the point of view of the nation as a whole may diverge widely from the principles appropriate to evaluation in terms of commercial profitability. First of all, the contribution of a proposed project to national income will differ from its profit (revenues less costs) to the extent that social valuations of outputs and inputs differ from market valuations, and in developing countries, such divergences are likely to be endemic. For one thing, the industrial base of developing countries is small, and individual projects often provide large increments in the total supply of particular goods and services; this tends to reduce the prices of the goods and services, or at least to prevent them from rising as much as they would if supplies were to remain restricted. The commercial profit is reduced by the reduction in prices that would accompany augmentation of outputs, and this militates against undertaking investments when the criterion of evaluation is commercial profit. From the point of view of the nation as a whole, however, the fall in prices is not a disadvantage, the loss to the enterprise is balanced by the gain to consumers. The point is that when projects occasion changes in prices, the appropriate measure of increase in national income is the willingness to pay for products - the total amount the users would pay for a project's output rather than go without - rather than what they actually might pay, which is relevant for measuring commercial profit.

76. Other instances of divergence between commercial and social valuations are easy to find. The actual wage rate defines the cost of labour in a calculus of commercial profitability. But the cost to the economy of the labour input to a project in terms of national income is measured by the value of output lost elsewhere in the economy, and this may differ from the market wage in those developing countries characterized by widespread unemployment, disguised as well as overt. In addition, the calculus of commercial profitability does not take into account so-called "secondary" costs and benefits that are relevant to the national income calculus. For example, the construction costs of workers' housing accompanying a large project represent a drain on the resources of the economy which could otherwise be invested and ought, therefore, to be reckoned into the national income calculus of project costs. Similarly, the future flow of housing services represents an indirect national income benefit of the project. But these costs and benefits would enter into the calculus of commercial profitability only if the enterprise itself built and then leased housing to its workers.

77. The calculus of the contribution to national income of a proposed project thus requires a systematic re-evaluation of all outputs and inputs. But the objectives of economic development go beyond simply increasing the national income. Even at the cost of sacrificing gains in the total income, most developing countries seek to redistribute income both to poorer regions and to poorer groups, such as unemployed members of the labour force, and the calculus of the gains in income of a

particular group or region differs even more markedly than does the calculus of national income from that of commercial profitability. For example, the wages and salaries of workers of a disadvantaged group or region for whom a project provides jobs are a positive gain in terms of a redistribution objective (at least to the extent that project wages and salaries exceed their potential income in alternative employment), as is the extra income generated within the group or region via the "multiplier" process - the spending of primary incomes accruing from the project. Neither of these "secondary benefits" vis-à-vis the redistribution objective represents a gain in terms of national income. Moreover, although the actual payments of the users of project outputs can be considered a transfer from the users to the rest of the nation and can, therefore, be ignored in the national income calculus, actual payments must be deducted from users' willingness to pay in computing the net gain to users belonging to a specific group or region singled out for redistribution.

78. Still another objective that must be borne in mind in project evaluation in developing countries is improvement of the balance ofpayments, for stress on the balance of payments is a frequent concomitant of rapid industrialization, and most countries troubled by balance of payments difficulties place great emphasis on freeing themselves from foreign dependence. The effect on self-sufficiency of a project is measured by the exports it generates less the imports it necessitates, import substitution being counted as negative imports.

79. Finally, a government might decide that certain goods and services have a higher social value than that indicated by their contribution to national income measured in terms of prices based on consumer demand. Increased fulfilment of so-called "merit wants" may constitute a distinct objective of national policy and may therefore be relevant to industrial project evaluation. The contribution to the fulfilment of a particular "merit want" is measured in physical terms.

80. But as these several objectives may be only partially complementary and may in important cases be competitive with one another, the question immediately arises as to how they can all be taken into account in project evaluation. One alternative project plan may contribute more to national income, another more to the income of region Z at a sacrifice of some amount of national income.

81. A comprehensive measure of merit must be defined to rank alternative investment proposals. At first, it might seem possible simply to add together the contributions of a proposed investment to distinct objectives, and to take the sum as the over-all measure of merit. But this can no more be done than can apples and bananas be added together to measure the value of the fruit. Just as relative prices are needed to place apples and bananas on a common footing, so are relative weights needed to make commensurable with one another contributions to national income, contributions to the income of specific groups and regions, contributions to self-sufficiency and contributions to the fulfilment of particular merit wants. Thus, the "objective function", the measure of merit of alternative investment proposals, is properly a

weighted sum of the contributions these projects make to a different objective. 1/

82. The choice of weights for each objective is essentially a value judgement and as such, a political decision that is properly the domain of policy makers responsible to the electorate. But these value judgements cannot be made in a vacuum, for the choice of the weight attached to region Z depends not only on the present relationship of region Z's per capita income to the national average, but also on the prospects for future development, which is to say, on the ensemble of potential projects under consideration. The choice of weights cannot be made independently of the technical possibilities for achieving the various objectives.

83. Optimally, tentative values of the weights will be generated from the perspective plans and term plans (for example, five-year plans) of the over-all development of the economy. If the inter-temporal distribution of consumption is planned optimally with respect to constraints on its interregional distribution and on its distribution among various groups of the population, constraints on the balance of payments (taking into account export possibilities as well as the import requirements of the planned course of development), and constraints on the provision of specific merit wants, then tentative values of the weights required for project evaluation will emerge as a set of "dual prices" (soluble multipliers) associated with the optimal plan. These tentative values can be revised as the implementation of selected projects reveals more information about the technical possibilities for achieving the several objectives of development.

84. The calculus of national economic profitability differs from the calculus of commercial profitability in two respects. First, it requires more information about outputs and inputs than the market provides: shadow prices for labour and other factors, as well as for products, require computations within the framework of the development of the entire economy. Second, estimates of national economic profitability require explicit value judgements on the part of policy makers, judgements preferably embodied in an over-all development plan for the economy.

1/ For convenience, the unit of account can be taken to be national income so that the weight on contribution to national income is by definition one. A weight on the income generated to region Z of 0.5 would therefore mean, for example, that a premium of 50 per cent over and above contribution to national income would be placed on increments to the income of region Z. In other words, one peso or one rupee of income generated to a region would be considered the equivalent of 1.5 additional pesos or rupees of national income. A weight of 0.1 on contribution to self-sufficiency would mean a "shadow" or "accounting exchange rate" of 1.1 times the official exchange rate. A weight of 100 on hospital beds considered as a merit want would mean that a premium of 100 monetary units would be added to the market price of each hospital bed.

85. It should be emphasized that these value judgements must, in any case, be made, for few if any countries do not take the objectives of income redistribution, self-sufficiency and merit wants into account in the choice among alternative investment patterns. Thus, the question is only whether or not it is better to base the value judgements explicitly on comprehensive development plans than to make them on an ad hoc basis as each project is considered for approval. The Symposium believed that the stated goals of development would be better served by explicit value judgements reflecting comprehensive development plans approved by responsible policy-makers than by implicit value judgements made in the course of project evaluation by individuals without political responsibility.

86. The presentation of the methodology for calculating national economic profitability raised questions of relevance and operationality for many participants. The subsequent discussion brought out several points. First, all the participants agreed that the test of the methodology was operationality, it would be of no value if it were confined to theoretical calculations. Second, it was agreed that the sophistication of the methodology must be tailored to the complexity of the decision, one does not use an elephant gun to shoot ducks. Third, the sophistication of the methodology must be tailored to the availability of data. National economic profitability calculations based on totally unreliable data are no more valid than calculations of commercial profitability based on unreliable estimates of product demand and project costs, a house built on a foundation of sand is not more sturdy for being public rather than private. Fourth, the calculation of national economic profitability may be less precise than the calculation of commercial profitability because of the extra data and value judgements required.

87. In view of all these qualifications, two further questions emerged: First, is such an elaborate procedure as has been outlined necessary? Second, is such an elaborate procedure within the competence of developing countries, especially when the scarcity of trained personnel is taken into account? To the first question, the Symposium answered "yes". Evaluation of projects in terms of the objectives of development is the first step in the realization of these objectives. Speedy implementation and thorough follow-up of approved projects were stressed by many participants as equally important, but it was agreed that unless projects were chosen in accordance with national goals, implementation and follow-up were of relatively little value. And whereas many choices can be made by means of relatively unsophisticated criteria, the experience of centrally planned and market economies alike indicates that simple criteria do not suffice for the largest part of the choices that must be made among alternative projects.

88. As for the second question, the Symposium proposed that the United Nations take major responsibility to help increase the competence of the developing countries at their request in applying the calculus of national economic profitability to project evaluation. In co-operation with the developing countries, either singly or in groups, training workshops should be organized in which United Nations experts working jointly with experts of the host countries would impart instruction to individuals responsible for choosing among alternative projects in the methodology of calculating national economic profitability. To further this end, a manual should

be prepared explaining the conceptual framework and calculation of national economic profitability. Alternative techniques of varying degrees of sophistication should be included in view of the varying needs of countries at different levels of development and the varying needs within each country with respect to decisions of different degrees of complexity. Moreover, developing countries should be assisted in applying the techniques of choosing among alternative projects in accordance with national economic profitability. Such pilot studies would provide an actual demonstration of the possibilities and problems of applying the methodology, and publication of these studies would spread their benefit beyond the borders of the countries in which they are carried out. Two additional handbooks were thought to be useful, and their preparation was recommended. The first would explain the mathematical aspects of the calculus of national economic profitability. The second would elucidate the central economic concepts of project evaluation in a form readily accessible to the engineers who play a major role in the preparation of alternative project plans. Finally, a paper should be prepared explaining the nature and role of value judgements in the calculus of national economic profitability. The relationship between value judgements and the technical possibilities for fulfilling different objectives should be clearly set forth. Such a paper would assist individuals at all levels of planning, from policy-makers to technicians, in carrying out their appropriate tasks in project evaluation by delineating responsibilities and decisions and by showing how decisions at each level relate to decisions at other levels.

Other criteria (linkage consideration, skill formation, composite criteria, etc.) (agenda item B.4.b)

89. That industrial projects incur costs and provide benefits over long periods of time is axiomatic, and the need for an inter-temporal criterion that explicitly takes this fact into account is generally recognised. During the course of the Symposium, several papers were presented which dealt with the theory and practice of measurement of investment effectiveness in both centrally planned and market economies. The adequacy of the "period of recoupment" (or "pay-back period", as it is called in market economies) for comparing projects providing the same quantity of output over identical periods of time was recognized, as was the inadequacy of this criterion in its simple form for dealing with more complex decisions, for example, for choosing among projects of different service lives. Alternative approaches to the choice of a measure of effectiveness comprehending the complex as well as the simple cases were suggested by several authors. The alternatives put forward revolved about two ideas: (a) modification and extension of the recoupment period calculus and (b) the use of the project's discounted present value of benefits less costs as the measure of merit. The members of the Symposium agreed that the standard of comparison against which alternative projects ought to be judged in terms of their contribution to national income - whether it takes the form of an interest rate for computation of present value or a standard period of recoupment in an extended version of the recoupment period method - should be derived from the over-all plan of development of the economy and must therefore reflect the value judgements of policy-makers about the desirability of alternative rates and patterns of development as well as the technical possibilities of the

economy for achieving alternative paths of growth. Similarly, the standard of comparison in the inter-temporal criterion for objectives other than national income must reflect both a value judgement about the relative desirability of contribution to the objective at different times and the technical possibilities for achieving contribution to the objective at different times. As in the standard of comparison for the national economic objective, the standard of comparison for other objectives ought to be derived from over-all development plans.

90. Another consequence of the fact that industrial projects incur costs and provide benefits over long periods of time is that their outcome is inherently uncertain. The uncertainty stems from lack of precise knowledge of the course of (shadow) prices of outputs and inputs, as well as from lack of precise knowledge about the technical relationships between inputs and outputs. But different projects are characterized by different degrees of uncertainty, and the Symposium was obliged, therefore, to consider the question of how to take uncertainty into account in the calculus of national economic profitability. The Symposium rejected the conventional private practice of attaching penalties to projects in proportion to their riskiness, for this practice leads private entrepreneurs to select projects of lower quality in their quest for certainty than they would choose were they to base their selection on expected average performance alone. Since a government, unlike the typical private entrepreneur, constructs a large number of projects that are at least partially independent of one another, the government is able to pool risks in a way that the private entrepreneur is not: the failure of one project may be balanced by the above-par performance of another. Hence, the government ought to measure project merit more by its expectation of the project's average performance, paying less attention to possible variations about the average than a private entrepreneur, who places all his eggs in one or two barkets, can afford to do.

91. The choice of location of industrial projects received the attention of many authors and speakers. It was agreed that the location of projects was an essential factor in the calculus of national economic profitability, especially with respect to national income and redistributional objectives. The relationship of a proposed project to existing and projected investment complexes was recognized as an important area of divergence between commercial and national economic profitability requiring governmental direction to ensure that decisions are made in accordance with national economic rather than commercial profitability when the two conflict. Governmental intervention with the market might take the direct form of specification of location in industrial licensing or the indirect form of subsidization (tax holidays, concessional interest rates on governmental loans, etc.).

92. The role of international specialization (division of labour) in the selection of projects according to national economic profitability received considerable attention from the Symposium. The Symposium recognized the existence of a multiplicity of objectives that international specialization must serve: first, increase in the total income of the group of nations banding together to gain from division of labour, second, equitable distribution of the gains in total income, which may conflict with maximization of the total in the same way that the goal of increasing the income of a specific region of a single country may reduce the

national income from the level attainable without special attention to the region in question, third, some internal balance must be maintained in each economy, even if this conflicts with international specialization (for example, no country will want to remain entirely agricultural regardless of what the dictates of international specialization might be). The Symposium recognized that the methodology for taking international specialization into account in the calculus of national economic profitability is in an embryonic state, and that incorporation of this desideratum into the formal criteria for project evaluation must await further research.

93. Management was recognized by the Symposium as a critical determinant of national economic as well as commercial profitability. The difficulties of incorporating evaluation of the management proposed for alternative projects into the calculation of either type of profitability were also recognized. Alternative forms of management were discussed. The value of management with previous experience in conditions similar to those that the new project will encounter, suggested the desirability of carefully selected foreign assistance combining foreign technical and managerial expertise with local entrepreneurship, at least in the early stages of new ventures. The high cost of foreign management and the interest of the developing countries in developing their own cadres of managers make the training of domestic managers to replace foreign ones desirable both from the point of view of commercial profitability and that of national economic profitability. This factor, together with the importance of entrusting the conduct of the business to a management team, which includes adequate knowledge of local conditions and problems and has a significant financial stake in the success of the project, were generally considered to militate against managing agency and turn-key arrangements. The argument was presented, however, that locally-based managing agency firms, on the Indian model, could be valuable in countries where local managerial and entrepreneurial skills are scarce.

94. The members of the Symposium felt that research into the problem of management evaluation should give special attention to the choice of management systems with particular reference to the varying needs of countries in different stages of development. It was considered that the following studies should be undertaken:

(a) Collection and analysis of experience of management problems;

(b) Methods of appraisal of managerial requirements,

(c) Methods of organizing the provision of management on an international basis (giving due regard to the need for incentives to attract personnel with special skills),

(d) Methods of selection of management and of candidates for management training.

95. Skill requirements apart from management were also considered by those at the Symposium. The shortage of skilled workers was recognized as an important limiting factor to industrialization, but one which commercial profitability can take into

account only insofar as shortages of skilled personnel are reflected in wage differentials. The need for governmental action to ensure adequate supplies of the skills required for carrying out the objectives and targets embodied in over-all plans was recognized, and optimism was expressed that input-output and other mathematical techniques could quantify skill requirements. This would permit project evaluation to be founded upon realistic estimates of the inventory of human resources available and thereby increase the relevance of the calculus of national economic profitability.

96. The Symposium felt that all these topics - choice of inter-temporal criteria, treatment of uncertainty, location, incorporation of the desideratum of international specialization into the calculus of national economic profitability, the evaluation of management, and skill patterns - merit further research. In particular, the differences between the period of recoupment and the present value criteria ought to be examined and the relationship between the two clarified. The measurement of uncertainty and the nature of value judgements about the relative social value of higher average preference and lower risk, and the implications of the relationship between the two for choice among projects that differ in their degree and kind of uncertainty ought to be explored, with a view to setting operational criteria for dealing with uncertainty. The integration of international specialization into the calculus of profitability should be studied in order to separate the decisions that must be made at the level of over-all planning from the decisions to be made at the level of project evaluation. Research into evaluation of management should give special attention to the choice of management system with particular reference to the varying needs of countries in different stages of development. A useful first step would be the collection and analysis of actual experience with various forms of management.

Survey of current practices and theories (agenda item B.4.c)

97. The Symposium surveyed the theories and practices of industrial project evaluation adopted by both the centrally planned economies and the market economies.

98. Methods of investigations of investment effectiveness in centrally planned economies have been gradually refined as their economies get more and more intricate. Starting from the evaluation of industrial projects by means of partial technical-economic indices, the methods have now evolved into calculations by means of synthetic indices. Parameters of these indices referring to technical period of construction and exploitation of investment alternatives are calculated in such a way as to reflect approximately the significance of all these factors in relation to the national economy.

99. It was recommended that the experience acquired by these countries in resolving several practical problems in the field of broadly-conceived effectiveness of investment would be of significant value to the developing countries.

100. The investigations on the optimization of perspective plans by sector and by branch of industry carried out in some of these countries were discussed and their value noted. The Symposium recognized that one of the basic problems of development lies in the attainment of balanced growth for individual branches of industry. Individual projects should, therefore, be selected in conformity with this basic premise.

101. The main criteria used in industrial project evaluations in centrally-planned economies are as follows:

(a) General strategy, location, ascertaining of resources and data requirements,

(b) Profitability: open static models are constructed using linear programming and shadow prices.

102. "The Temporary Methodology for Comparing Economic Efficiency of Capital Investments in the CMEA Member Countries", which was circulated as information material at the Symposium, sets out the general principles for making such calculations.

103. The Symposium also considered the practices of industrial project evaluation in developed countries with market economies and surveyed the methods used for such evaluations in both the private and public sectors.

104. The methods used in the developed countries are, of course, related to the objectives of the organization or sector. Broadly speaking, the private sector, the main objective of which is to maximize profits, evaluates projects in terms of their commercial profitability, on the other hand, there is an increasing tendency for the public sector to evaluate projects in terms of their national economic profitability by, inter alia, relating them to regional and national objectives.

105. It was noted from the literature presented that there is an increasing tendency in the developed countries to use:

(a) Sensitivity and probability analyses to "measure" the uncertainty associated with a particular project;

(b) Discounting methods (primarily the internal rate of return and net present value methods) to calculate the national or commercial profitability of a project,

(c) Input/output analyses and linear programming to more accurately forecast the data required for the evaluation of a project.

106. However, the literature revealed that there is still wide scope for improvement of the methods of industrial project evaluation in the developed countries with market economies. One of the major problems is concerned with the assessment of uncertainty and its place in the evaluation of a project. This is likely to be an even greater problem in the developing countries.

107. The Symposium noted that the experience of countries with centrally planned economies and developed economies was useful and relevant to developing countries and should be critically and selectively assimilated. However, the Symposium emphasized the overriding importance in developing countries of relating all industrial projects to industrial priorities and estimating national economic profitability with a view to applying the limited resources to maximum effect for accelerated industrial development.

Pricing problems with special reference to foreign exchange and foreign trade considerations (agenda item B.5)

108. The problem of project evaluation must be looked at as embracing two distinct and equally important problems:

(a) That of finding a satisfactory investment criterion which would take into account both elements considered of utmost importance, i.e. the benefit and cost streams generated by a given industrial project,

(b) That of finding the equilibrium prices for all the benefit and cost items considered in the criterion, i.e. prices that would equilibrate a given development programme.

Whatever particular decision is made, the first problem affects seriously the second (that of pricing) at least insofar as it determines the list of items to be priced.

109. Since in any project evaluation the result depends both on the adopted criterion formula and the way the problem of pricing is solved, a kind of substitution emerges between the actual shape of the formula and the price relation. This means that starting from a given situation, it is feasible to obtain the same result either by changing the criterion formula, or by changing price relations. This fact shows its significance especially when we have to deal in practice with simplified formulae and approximated quasi-equilibrium prices. Given a particular chosen shape of the accounting formula, it is necessary to decide what value parameters are to be used for project evaluation.

110. The most obvious possibility, which is still quite often met in practice, would be to use for this purpose a set of market prices. But, in scrutinizing the general shape of the accounting formula, it can be seen at once that the set of actual market prices would not suffice even in the technical sense. For some of the independent variables (particularly on the benefit side), it is hard to find a market

price at all (if, for example, one of the benefit variables is improvement in health) other variables representing future outlay or benefit would have to be valued, at best, at some expected future market prices. Moreover, it is commonly admitted that market prices do not always give the proper indication of what the actual social values of the relevant benefits and sacrifices are, particularly in cases involving substantial disproportions between the available amounts of various production factors and related goals. Yet, though current market prices are faulty, they cannot be totally abolished or replaced. It does not mean, however, that current market prices could not possibly be replaced, partially at least, by some other set of prices, specially constructed to provide a yardstick of long-term evaluation of production factors allocation.

111. There are two possible approaches to the problem of pricing in industrial project evaluation: one may be termed the computation approach and the other the policy approach. The computation approach is predominantly concerned with the techniques of computing the value parameters needed for making decisions on investment choice. Elaboration of such techniques means necessarily an exercise in model-building for the optimization of plans (programmes). These techniques of optimization permit an estimation of the actual social values of production factors in the form of the so-called shadow prices. For instance, in terms of linear programming, these prices represent a set of parameters of dual solutions to a given over-all development programme. Thus, from the point of view of a given development programme, the set of shadow prices represents the value parameters which ought to be assigned to all the "sacrifices" (or simply factors, as the case may be), in order to give this particular programme an optimum solution. Shadow prices show the weight of each of the constraints of the given programme, and in this way they show, in fact, the social values attached to each sacrifice item (or factor) within the given programme. In showing the weights of the constraints, shadow prices can also be interpreted in terms of showing the opportunity cost of each sacrifice, always given the development programme.

112. Depending on the type of the development programme and the objective function chosen, shadow prices will acquire various economic meanings. Since shadow prices which are used in the accounting formula are entirely dependent upon the type of programme chosen for the purpose of finding the optimum solution, it follows that the degree of aggregation of shadow prices is also dependent upon the degree of aggregation of the programme in question. The use of a uniform, aggregated shadow price can hardly mean a satisfactory solution to the problem of pricing in industrial project evaluation. If this shadow price is used in combination with market prices, the ultimate effect is difficult to predict, it may happen that the use of market prices offsets the benefits of using shadow prices derived from an aggregated programme. Since it seems impossible, for various reasons, to build a detailed programme (e.g. inadequate information, inability of processing the information, etc.), the value parameters which reflect a certain development programme are in actual practice, nothing more than approximations of the ideal shadow prices derived from a perfect over-all programme. In order to make a distinction between these

approximated value parameters derived from actual practice and those derived from an ideal model, it was found convenient to denote the former as accounting prices, while reserving the term "shadow prices" for the latter.

113. There seem to be two main features to the actual methods of computing accounting prices as approximation of shadow prices. One is that accounting prices are derived from what may be called partial solutions. The other is that they represent aggregative value parameters. This opens a broad range of possibilities and dilemmas for planners. First, they face the problem of choosing one of the many conceivable approaches in a given situation, and second, how far to go in the refinement of a would-be-applied method.

114. As to procedure, some rationalization - stemming from the practical experience - might be observed in the behaviour of the planning authorities with respect to the computation of accounting prices. For example, as a rule, planners using accounting prices are anxious to compute the prices of the factors which are manifestly in shortage. Some countries are interested in finding out how to estimate the right rate of foreign exchange, others care first of all for the capital interest rate, and still others are primarily concerned about wage rates. It was obvious for all participants that the adequacy of each of these approaches depends on the current economic situation and the way of viewing the present and future development of a given economy. This outlook of the economy may also be expressed in the choice of time horizon as a basis for the computation of accounting prices.

115. There is a close relationship between the institutional framework and the "choice process" of approximate accounting prices. For instance, in a mixed economy an accounting price of a given factor can be selected out of a set of actual prices. On the other hand, a centrally planned economy by necessity (arising from a uniform price rule) requires the derivation of accounting prices from some sort of an economic model.

116. Since the computation approach leads, at best, to finding better or worse methods for making better or worse, but, as a rule, rather crude approximations, the policy approach becomes all the more important and perhaps it would deserve even more attention than the former one. The policy approach implies that the economy-wide application of accounting prices requires the creation of a suitable information and inducement mechanism, which would be able to bring in line all the investment decisions of various levels. The actual shape of such a mechanism depends largely upon the institutional set-up.

117. In any economic system, provided only that a Central Planning Board does exist and does elaborate a certain strategy of development, attempts must be made by the Board to affect efficiently the decisions of individual decision-makers by:

(a) Giving them enough information as to what they ought to choose in order to make their decisions consistent with the over-all strategy, and

(b) Persuading them to use this information in their investment decisions in the socially desirable way.

The existing investment institutional set-ups differ in the (a) available, (b) necessary, and (c) employment measures and instruments of performing the informational and inducement tasks. An extensive programme of research, preferably carried out by an international organization, is therefore needed, in order to provide developing countries with adequate policy instruments as regards an efficient inducement mechanism.

118. In view of the prevailing economic situation in most of the developing countries, the problem of arriving at an appropriate accounting price of foreign exchange called for special attention in the discussion. Simplified criteria emphasizing the foreign exchange savings of export promotion or import substitution projects were discussed. One of the techniques distinguishes between the foreign and local components in the costs structure of the project and then measures the savings of the foreign components (compared with an accepted international price) in terms of the total domestic resource necessary to bring about this saving. In computing the benefits of each project (in terms of foreign exchange earned either through export or import substitution), it is possible to use either market prices or, where there are imperfections in the market prices, accounting prices or some approximation of it.

119. It was recommended that developing countries, in the evaluation of the export promoting or import substituting projects, should use techniques of the type described above, since this is possible even without having perfect input-output data or precise and accurate shadow prices.

120. It was further recommended that developing countries include this type of analysis in their evaluation of industrial projects, so that their development will be aimed, among other considerations, at reaching the optimal savings in foreign exchange either through import substitution or, where there is a distinct comparative advantage, through export promotion.

121. It is believed that this type of analysis, once used, will foster international trade and enable each country to concentrate on those industries where the net savings in the foreign exchange would be the highest in terms of local costs and would lead to an optimal development of industry, which will improve the balance of payments of the country.

122. It was recommended that the United Nations disseminate these and similar techniques of evaluating industries from the point of view of foreign exchange savings. This could be achieved through the organization and holding of seminars and through assistance to the developing countries in the elaboration and clarification of these techniques.

Appraisal of financial aspects (agenda item B.6)

123. Sound financial planning of the proposed enterprise is impossible unless there is equally good planning of facilities, production, sales, etc., that is, planning of the entire construction and operating programme of the new enterprise, since it represents the translation of this programme into monetary terms.

124. There are at least four important reasons for financial forecasting being done as carefully and in as detailed a manner as possible. Financial estimates provide the raw materials for assessing commercial profitability and national economic profitability of the proposed enterprise. Second, effective financial forecasting provides the basis for decisions on how to finance the enterprise. Third, the financial forecast has a great potential value as a controlling device. By comparison of actual figures as they develop with those originally forecast for critical items, management can take timely note of developing deviations from the planned positions and can take timely measures before the situation becomes unmanageable. Finally, an effective job of forecasting financial needs will help a great deal in gaining the confidence of the development financing agency or other potential investors in the enterprise.

125. It was found that financial needs were frequently underestimated by the sponsors of industrial projects in developing countries. The serious underestimate of financial needs results in unduly high figures of commercial profitability and national economic profitability of the proposed enterprise, which may represent malallocation of resources. Underestimation of requirements in the simplest form can lead to the enterprise's running out of money and credit and collapsing before the inherent merits of the project have had a chance to show themselves. It may also lead to subsequent stringencies resulting in efforts to economize on important equipment or other facilities, which may seriously handicap the development of the enterprise. On the other hand, an over-estimate of the potential financing requirements could so unduly depress commercial profitability and national economic profitability of the project that it could be prematurely and unnecessarily abandoned. In other cases, an over-estimate of financial needs can mean over-capitalization, which represents wastage of valuable financial resources. It is for these reasons that the scrutiny of financial planning of the proposed enterprise acquires an exceptional importance in project appraisal.

126. The projected balance sheet method and the cash flow forecast method represent two techniques of organizing projections of financial requirements. The former represents a comparative statistics giving a picture of key balance sheet items at two different points of time without reflecting the needs that may arise in the interim. The latter is essentially a tabulation of the plans of the enterprise in terms of the impact of the receipts and expenditures of cash in future periods. A good set of financial forecasts should include both project balance sheets as of the month-end and cash forecasts detailed by monthly periods for the similar span of time. Appraisal of these estimates requires for each proposed project, careful consideration of (a) determinants of the investment of fixed assets, inventory needs (including raw materials, work-in-process, inventories and finished goods) and receivables, (b) determinants of the need for cash balances, (c) sources of funds ("spontaneous" sources of credit or accrued liabilities, negotiated credit and equity investment), and (d) tabulation of cash flows of receipts (e.g. sales, receivable arising out of sales, sales of securities, etc.) and cash flows of expenditure (e.g. outlays for fixed assets, wages, rent, taxes, dividends, etc.) made under the cash flow forecast method.

127. Inadequate emphasis on the process of project financial planning by sponsors, shortage of skilled and adequately experienced personnel in this field, widespread tendency towards underestimation of financial needs, failure of projections to reflect distinctive circumstances of the particular project and failure to provide sufficient uncommitted reserves are among the chief weaknesses in financial planning of the proposed projects in developing countries. In view of the great importance of financial planning, an evaluating agency may profitably assist sponsors of a project in the development of detailed financial forecasts.

IV. FOLLOW-UP AND SUPERVISION OF INDUSTRIAL PROJECT

Follow-up of approved projects (agenda item C.7)

128. The Symposium considered the subject of follow-up of the implementation of industrial projects. This activity is to be regarded as an element in the continuous process of identifying, formulating, appraising and implementing a project, but its importance has perhaps not hitherto been fully appreciated. While it has the obvious function of ensuring that the project follows approved lines, it has a number of other valuable results, the importance of which needs to be publicized.

129. It was recognized that because of changing conditions, no project is likely to follow forecasts exactly. For this and other reasons, follow-up should result in a continuous, limited re-appraisal of the project in the course of implementation. This will enable the examining institution to assess and revise the validity of the assumptions and appraisal methods used during evaluation. It will also provide information about the industrial effectiveness of the project. A tool which has interesting possibilities for smooth and constructive follow-up is a network implementation plan created during the preparation and evaluation of the project, as referred to in paragraph 65 above.

130. Since the development agency has a profound interest in successful development, it should, without interfering with the entrepreneur's freedom and responsibility for managing the project, take early action to convince the management that their relation is one of long-term partnership. Regular reporting by the management is a fundamental need, which should be supplemented by the establishment of a good working relationship at a personal level. The development agency can achieve this latter objective either by appointing a nominee director to the board of the project, or by sending a representative to visit the project periodically. In addition, top-level personal discussions should take place as the occasion permits.

131. Follow-up activity conducted on these lines will help secure timely detection and correction of short-comings or danger for the project, and should ensure continued, committed support for the project on the part of the development agency. In some countries, several bodies and organizations concerned with supervision, control, planning and evaluation of development projects may call for reports from management. The Symposium recognized the problem of evolving a system which could satisfy all such organs without involving the management in compiling repetitive reports in different forms.

132. Attention was drawn to the fact that follow-up study of the commercial performance of a project was not necessarily a valid guide to its success in achieving the national economic objectives that may have been expected from it and the need for further study of this question was recognized. Moreover, exceptional local conditions, especially in regard to developing countries, may enable a project to make profits, although technically inefficient when related to certain accepted standards. In this respect, it was suggested that follow-up agencies should devote increasing attention to the need for giving technical and administrative assistance to projects under exceptional conditions, even when they are commercially profitable. The problems of achieving this objective in a market economy, however,

were recognized as well as the danger which might affect the management's independence

133. The existence of machinery in the development agency for follow-up work is vital, but opinion differs about whether or not this should be located in the project division itself. While this is bound to be affected by local conditions and available manpower, it was felt that a study of this and certain other related questions could be valuable.

134. Recognizing the beneficial consequences that follow-up has for the project, the financial participants and the nation, the Symposium recommended that:

(a) The proposed manual should emphasize the importance of implementation of projects being accompanied by adequate and balanced follow-up activity;

(b) The manual should present recommendations on the degree of intensity of follow-up activity to be adopted in different cases with a description of the commonly accepted objectives and techniques; and it should put forward specimen forms designed, among other things, to minimize the burden on the project management when it has to make follow-up reports to several institutions;

(c) The feedback results should be studied, both as regards working methods and basic assumptions and the measurement of industrial effectiveness in different industries attainable through follow-up activity. Methods of maximizing these effects should be examined with a view to amalgamating them into generalized data which evaluating agencies could use as a basis for formulating national norms;

(d) A study of follow-up practices under various different economic systems should be made with a view to bringing out their common features and differences. It should also examine:

(i) The problem of combining the assessment of commercial profitability achieved with the assessment of non-commercial national economic objectives; and

(ii) The extent to which development or financial agencies can beneficially seek to improve the efficiency of the project to be followed up through supporting services or activities of a different nature.

V. SURVEY OF COUNTRY EXPERIENCE

Review of industrial project evaluation in developing countries (agenda item D.3)

Country experience (agenda item D.3 a)

135. The account of country experience in industrial project evaluation included a survey of the organizational framework available for project evaluation in the various countries, a description of the different criteria used, and, in greater or lesser detail, the techniques adopted in their application. There was general agreement that the proper evaluation and selection of projects were of fundamental importance in development planning and, therefore, that the developing countries, in particular, needed to improve their machinery for project evaluation as well as to refine their method and practice in project analysis and selection.

136. The organization generally available for evaluation and selection of projects consisted of the Government machinery for planning and promotion of industry, on the one hand, and the banking and financing institutions on the other. The quality and adequacy of these agencies for project evaluation in the different countries varied in proportion to their state of development.

137. In almost all participating countries, the machinery for national planning had been established. While in most countries there existed a national framework of plan priorities and development goals within which individual projects were developed and evaluated, many countries are still faced with problems of project evaluation arising out of the absence of such a national framework. The close dependence of project evaluation on integrated national planning was most evident in the centrally planned economies, while in the economies where industrial growth was predominantly in the private sector, broad sectoral goals and guidelines provided the framework of industrial development combined, in some cases, with licensing procedures and industrial incentives within which individual projects were analysed and financed. It appeared, however, on the whole, that the creation of the organization for detailed project evaluation as part of the planning process should receive closer attention in most of the developing countries.

138. The financing institutions, which included development financing institutions and commercial banks, were one of the principal agencies of project evaluation, particularly in countries in which the private sector was responsible for a substantial portion of the industrial sector, and also in one centrally planned but highly decentralized economy. Some of these countries had developed a well-integrated network of financing institutions which operated effectively for the evaluation and financing of individual industrial enterprises. Some of these financing institutions had even adopted measures to promote and sponsor projects for investment when such projects were regarded as desirable in the national interest. While there was agreement that such a dual function may be necessary in the initial stages of industrial growth in developing countries, it was felt that project development and project evaluation should ideally be the functions of separate organizations as the exercise of such a dual function would tend to endanger the objectivity of the evaluation.

139. Many of the developing countries depend largely on foreign consultants for the evaluation of individual projects, since the skills to assess the techno-economic feasibility of projects have as yet to be developed in these countries. Therefore, the need for these countries to develop the range of skills specific to feasibility studies and evaluation of industrial projects, which include the skills of the technologist, accountant, economist, and manager, cannot be over-stressed. Furthermore, the efficacy and usefulness of project evaluation depend not only on the availability of qualified staff, but also on the machinery for collecting and processing the statistical data that is required. It was felt that in most developing countries, the paucity of statistical information and the unreliability of available information was militated against sound project evaluation.

140. Most countries applied both the criteria of national economic profitability, as well as those of commercial profitability in evaluating their industrial investments. In the developing countries in which criteria of commercial profitability had originally been followed without regard to the overriding needs of the national economy, industrial growth had been unbalanced in character, and had even aggravated some of the basic economic problems of these countries, such as the balance of payments. In applying the criteria of national economic profitability, special emphasis was normally given to the capacity of the investment to improve the balance of payments and generate earnings or savings in foreign exchange. Among the other criteria which had received priority were the capacity of the project to generate employment, its contribution to the national income, its contribution to balanced regional growth within the national economy, its capacity to maximize the use of indigenous raw materials and resources, and its capacity to stimulate and sustain further industrial growth. In this respect emphasis was placed on the need to pay closer attention to the incommensurable benefit factors in project evaluation, which was felt particularly in the initial stages of development, and to identify those characteristics of an industrial project which contribute to industrial growth, which enhance the level of technology, and act as originating points for a sustained process of industrialization. In regard to the experience of many developing countries in implementing programmes of import substitution, there was general agreement in line with what was said in paragraph 51, that import substitution should receive some priority in the first phase of industrialization, with the recognition that dangers were inherent in giving it exclusive priority. Such a process of industrialization is often based on light consumer industries. The level of technology that goes with it is comparatively low and seldom provides a base for further industrialization. Moreover, local production of consumer goods frequently leads to undesirable expansion of demand and ultimately, as was stated before, to growth in imports.

141. The approach in project evaluation evolved in developed countries needed to be modified in countries where the industrial sector has yet to be developed. For instance, it would be sometimes unrealistic to make an evaluation on the basis of an individual project, since, as is frequently the case, a group of related projects have to be developed to ensure the efficiency of the individual investment as it acquired its economic viability in a complex of co-ordinated investment. A dynamic approach to project evaluation would also have to examine markets in relation to new perspectives, including the domestic perspective created by a growing economy, as well as the international perspective created by the possibilities of the division of labour and economic integration at an international level. There is also the

need to create markets by joint venture between countries, as well as industrial branch agreements between countries described by the United Nations Conference on Trade and Development, which would alter the normal market approach to evaluation of individual projects. Certain groups of countries which worked within the framework of common markets, and policies of economic integration, placed the evaluation of their investments in that framework.

142. The techniques employed in the application of the criteria varied in sophistication according to the nature of the economy and the level of development. In countries where central planning was adopted, elaborate methodologies, together with a wide variety of indices, were employed for calculating the efficiency of the investments. In developing countries with a mixed or market economy, the techniques adopted were simpler and the indices used were fewer. The statistical information available in these countries and, in some instances, the nature of the planning process itself in their present stage of development did not easily lend themselves to more complex methodologies. However, it was recognized that the introduction of more reliable methods and more precise instruments for the intensive analysis of projects, as well as the measurement of their impact on the total economy, had to be expedited in these countries.

143. Finally, attention must be drawn to the frequent disparities in many developing countries between the project as evaluated and the project as implemented and operated. This is attributed, among other factors, to the absence of comprehensive statistical data and to failures in implementation and follow-up, which indicated the need for greater control of project implementation, as well as the systematic evaluation of the performance of projects in operation.

Case studies (agenda item D.8.b)

144. In general, many developing countries have had a good deal of experience in the implementation of industrial projects. Many case studies were reported and discussed, among these were large, medium and small enterprises in the public as well as the private sector. The subject matter of these case studies dealt with experiences in project evaluation for power plants, steel mill foundries, cement mills, automobiles and ship repair services, etc.

145. Generally, projects were conceived and implemented in accordance with the national economic strategy or plan, and priority was given to national economic profitability in the evaluation and implementation of projects.

146. Among the particular difficulties stressed were the following:

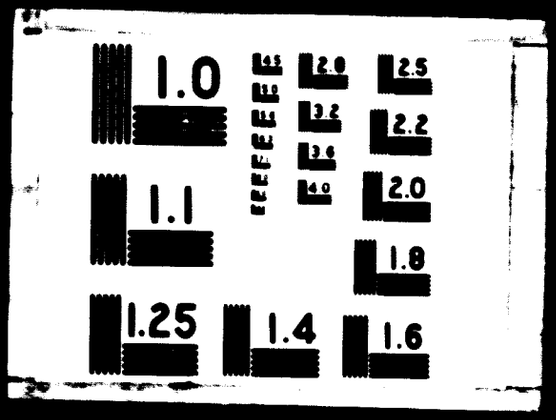
(a) Changes and uncertainty of technology;

(b) Shortage of skilled workers;

(c) Shortage of efficient management teams;

(d) Shortage of financial support;

(e) Paucity and uncertainty of statistical data.



147. In so far as there was a common theme through the various case studies, the following general points were made:

(a) Satisfactory execution of planned and analysed projects is of central importance;

(b) Project parameters must be based on reliable data, although in developing countries such data is either unavailable or incomplete,

(c) Because of the latter, and because national economies are generally under-developed, the general criteria used in deciding an optimum size should not be the same as those criteria used in developed economies;

(d) It is necessary to attempt to draw up a priority list in those countries with scarce raw materials and foreign exchange, otherwise the simultaneous or unplanned decision to carry on several projects may have the effect of provoking bottle-necks in obtaining raw materials and foreign exchange, thus causing delay or abandonment of certain projects;

(e) The experience gained by a project analysis staff is useful for the evaluation and implementation of future projects The follow-up stage is particularly important and must allow for correction of errors, over-estimates, etc., and for a look in retrospect of the various factors affecting policy decisions;

(f) Factors governing site location comprise technical, economic and regional considerations such as:

(i) Availability of water, power and other services;

(ii) Transport economics,

(iii) Regional development.

(g) The necessity for proper site investigation was stressed, particularly where large capital investment was being considered for large units of plant and equipment;

(h) One of the criteria used on plant layout should be ease of expansion, since in certain projects the success of the initial stage often justifies expansion of productive capacity;

(i) The necessity for a thorough investigation of the social aspects of the effects of the project. This involves not only the more immediate problems, such as availability of labour force, etc., but also those secondary effects of the project, such as the need for relocating houses, immigration to project site, etc.;

(j) It is important that technical and managerial personnel of the developing country work with the foreign agencies or consultants during both the planning and construction phases so that some experience of the work is thereby kept within the country. In this way, foreign consultants can also be well-advised of local conditions;

(k) Construction of the project should suit the needs of the developing country.

(l) Where foreign consultants or companies are retained on particular projects and wish to tender for the construction of the project, advice from independent consultants should also be sought - possibly the latter can check the work of the former;

(m) Where feasible, the local company or agency should act as liaison between the foreign contractor and local suppliers of building material and machinery. In this way, the local sub-contractor is better advised on the specific needs of the contractor and his requirements. If such a contract is properly handled, the side effects can be important for local manufacturers;

(n) Co-ordination and co-operation between the foreign contractor and consultant and the local company or agency should be written into the tender contract. Such a procedure of co-operation, though more complicated, difficult and perhaps risky, is healthier as it prevents permanent dependence on foreign expertise;

(o) The developing country through its agencies should clearly formulate its objectives and provision should be made for emergencies. The system of control should allow for a fair degree of flexibility and a system of arbitration should also be agreed upon for settling disagreements;

(p) In resolving these problems, the United Nations could be of valuable help to developing countries through its technical assistance programmes. Particular attention should therefore be given to the research of the particular needs and the promotion of requests for respective assistance in these aspects of industrial project evaluation.

ANNEXES

ANNEX I

AGENDA AND PROGRAMME

I. Agenda

A. Preliminary steps in setting up industrial projects

1. Relation of project to the general strategy of industrial development
2. Essential elements in the preparation of industrial projects
3. Requirements of data and other information for, and institutional aspects of, industrial project evaluation

B. Considerations in evaluation of industrial projects

4. Criteria for industrial project evaluation
   (a) Commercial profitability and national economic profitability
   (b) Other criteria (linkage considerations, skill formation, composite criteria, etc.)
   (c) Survey of current practices and theories in the field of industrial project evaluation
5. Pricing problems with special reference to foreign exchange and foreign trade considerations
6. Appraisal of financial aspects

C. Follow-up and supervision of industrial projects

7. Follow-up of approved projects

D. Survey of country experience

8. Review of industrial project evaluation in developing countries
   (a) Country experience
   (b) Case studies

II. Programme

Meeting Place: Valdstejn Palace

Monday, 11 October 1965

9.30 - 12.30	-	Registration of participants
14.30 - 17.30	-	Address of welcome by Mr. Jan Piller, Deputy Prime Minister and President of the State Commission for Investment of the Government of the Czechoslovak Socialist Republic
	-	Statement by the Director of the Symposium
	-	Message from the United Nations Commissioner for Industrial Development
	-	Message from the United Nations Commissioner for Technical Assistance
	-	Election of Chairman of the Symposium
	-	Opening Address by the Chairman of the Symposium
	-	Adoption of Agenda
	-	Election of other office bearers

Tuesday, 12 October 1965

9.30 - 12.30	-	A. Preliminary steps in setting up industrial projects
	-	1. Relation of projects to the general strategy of industrial development
14.30 - 17.30	-	2. Essential elements in the preparation of industrial projects
19.30	-	Reception by the Deputy Prime Minister and the President of the State Commission for Investment

Wednesday, 13 October 1965

9.30 - 12.30 - A.3. Requirements of data and other information for, and institutional aspects of, industrial project evaluation

14.30 - 17.30 - D. Survey of country experience

8. Review of industrial project evaluation in developing countries

(a) Country experience

Thursday, 14 October 1965

9.30 - 12.30, 14.30 - 17.30 - 8. (a) Country experience

Friday, 15 October 1965

9.30 - 12.30 - 8. (b) Case studies

Afternoon - Meeting with the Mayor of Prague, and presentation of the master plan for Prague by the chief architect of Prague

Saturday, 16 October 1965

Morning and Afternoon - Sightseeing

Sunday, 17 October 1965 - Open

Monday, 18 October 1965

9.30 - 12.30, 14.30 - 17.30 - B. Considerations in evaluation of industrial projects

4. Criteria for industrial project evaluation

(a) Commercial profitability and national economic profitability

Tuesday, 19 October 1965

9.30 - 12.30, 14.30 - 17.30 - 4. (a) Commercial profitability and national economic profitability (continued)

Wednesday, 20 October 1965

9.30 - 12.30, 14.30 - 17.30 - 4. (b) Other criteria (linkage considerations, skill formation, composite criteria, etc.)

Thursday, 21 October 1965

9.30 - 12.30 - 4. (b) Other criteria (linkage considerations, skill formation, composite criteria, etc.) (concluded)

14.30 - 17.30 - Group I: Discussion with the Representative of the Czechoslovakian State Commission for Investment and State Planning Commission

Group II: Discussion with the Representative of state design organizations of Czechoslovakia

Friday, 22 October 1965

9.30 - 12.30 - 4. (c) Survey of current practices and theories in the field of industrial project evaluation

14.30 - 17.30 - Group I: Discussions with the Representatives of state design organizations of Czechoslovakia

Group II: Discussions with the Representatives of the Czechoslovakian State Commission for Investment and State Planning Commission

Saturday, 23 October 1965

9.30 - 12.30 - 4. (c) Survey of current practices and theories in the field of industrial project evaluation (concluded)

14.30 - 17.30 - 5. Pricing problems with special reference to foreign exchange and foreign trade considerations

Sunday, 24 October 1965

- Day-long visit to the site of multi-purpose project on the river Vltava

Monday, 25 October 1965

9.30 - 12.30, 14.30 - 17.30 - B.5. Pricing problems with special reference to foreign exchange and foreign trade considerations

Tuesday, 26 October 1965

- Day-long visit to the porcelain factory in Karlovy Vary following discussions with the design organisations

Wednesday, 27 October 1965

- Return trip from Karlovy Vary including visit to the region of western Bohemia

Thursday, 28 October 1965

9.30 - 12.30 - B.6. Appraisal of financial aspects

14.30 - 17.30 - C. Follow-up and supervision of industrial projects

7. Follow-up of approved projects

Friday, 29 October 1965

9.30 - 12.30

- Conclusions
- Introduction of Symposium Report
- Adoption of Symposium Report

ANNEX II

ORGANIZATION OF THE SYMPOSIUM

1. The over-all Chairman of the Symposium — Professor Oldřich Stráda1

2. Chairmen for four major agenda items

A. Preliminary steps in setting up industrial projects — Mr. Augusto Millan Urzúa

B. Considerations in evaluation of industrial projects — Mr. Momčilo Pejović

C. Follow-up and supervision of industrial projects — Mr. Ahmed El Barbary

D. Survey of country experience — Mr. S.D. Joshi

3. Panels for guiding discussion for agenda sub-items

(C = Consultants, R = Rapporteur and M = Members)

A.1. Relation of projects to the general strategy for industrial development

1. Mr. Bruno F. de Figueiredo (C)
2. Mr. George A. Fatoye (R)
3. Mr. Ivan Ivanov (M)
4. Mr. L. Skebinski (M)
5. Mr. André Huybrechts (M)
6. Mr. Zoltan Roman (M)

A.2. Essential elements in the preparation of industrial projects

1. Mr. K.C. Mittra (C)
2. Mr. K. Sombatsiri (R)
3. Mr. M.A. Figueras Perez (M)
4. Mr. W. Krebs (M)
5. Mr. M. Ching (M)
6. Mr. E.P.C. Fernando (M)
7. Mr. Franz Latus (M)
8. Mr. Uberto Tedeschi (M)

A.3.	Requirements of data and other information for, and institutional aspects of, industrial project evaluation	1. Mr. K.C. Mittra (C) 2. Mr. T.M. Dade (R) 3. Mr. José L. Vietti (M) 4. Mr. F. van Hoek (M) 5. Mr. J.J. Bright (M)
B.4.	(a) Commercial profitability and national economic profitability	1. Mr. S. Marglin (C) 2. Mr. M. Ostrowski (C) 3. Mr. S.B. Akgur (R) 4. Mr. M. Cunha da Silva (M) 5. Mr. G. Cukor (M) 6. Mr. T.E. Kuhn (M)
B.4.	(b) Other criteria (linkage considerations, skill formation, composite criteria, etc.)	1. Mr. S. Marglin (C) 2. Mr. M. Ostrowski (C) 3. Mr. R.L. Shrestha (R) 4. Mr. A.T. Macais (M) 5. Mr. M. Zymelman (M) 6. Mr. G. Cukor (M)
B.4.	(c) Survey of current practices and theories in the field of industrial project evaluation	1. Mr. Emrid B. Alaev (C) 2. Mr. S. Visram (R) 3. Mr. J.M. Moumbounou (M) 4. Mr. O. Ferfecký (M) 5. Mr. M. Rakowski (M) 6. Mr. C.B. Edwards (M)
B.5.	Pricing problems with special reference to foreign exchange and foreign trade considerations	1. Mr. M. Ostrowski (C) 2. Mr. S. Marglin (C) 3. Mr. Ben-Zion Shapira (R) 4. Mr. K. Iravani (M) 5. Mr. J.R. Cabo Mugica (M) 6. Mr. O. Michailov (M)
B.6.	Appraisal of financial aspects	1. Mr. N.F. de Figueiredo (C) 2. Mr. A. Camilleri (R) 3. Mr. T. Masigh (M) 4. Mr. L.R.C. Lethbridge (M) 5. Mr. Gheorghe Sica (M)
C.7.	Follow-up of approved projects	1. Mr. N.F. de Figueiredo (C) 2. Mr. E. Situmbeko (R) 3. Mr. C. Alipaz Alcazar (M) 4. Mr. H.T. Parekh (M)

D.8. (a) **Country experience**

1. Mr. K.C. Mittra (C)
2. Mr. G. Guonatilleke (R)
3. Mr. Samir Kawar (M)
4. Mr. J. Martinez Benitez (M)
5. Mr. B. Berkoff (M)

D.8. (b) **Case studies**

1. Mr. E.B. Alaev (C)
2. Mr. V.A. Richardson (R)
3. Mr. Ben-Zion Shapira (M)
4. Mr. I. Parra-Peña (M)
5. Mr. N.A. Moscoso Campos (M)

ANNEX III

LIAISON OFFICER AND ORGANIZING COMMITTEE
OF THE
GOVERNMENT OF THE CZECHOSLOVAK SOCIALIST REPUBLIC

Liaison Officer

Mr. Zdeněk Durpekt, Ing.
Chief Architect, Town and Country Planning Department
Research Institute for Building and Architecture
Letenská 3
Prague 1 - Malá Strana

Organizing Committee

Head of the Committee

Mr. Jiří Buršík, Ing.
Head of the Department of Industry
Research Institute for Building and Architecture
Letenská 3
Prague 1 - Malá Strana

Members

Mrs. Libuše Hrušková
Department of Scientific and Technical Information
Research Institute for Building and Architecture
Letenská 3
Prague 1 - Malá Strana

Mrs. Olga Jahodová
Department of Economics and Finance
Research Institute for Building and Architecture
Letenská 3
Prague 1 - Malá Strana

Mr. Jaroslav Karlovský
Head of the Department of Economics and Finance
Institute for Standardization
Perlova 1
Prague 1

Mr. Emilian Konoplisky
Research Worker
Institute for Standardization
Perlova 1
Prague 1

Mrs. Věra Loulová
Department of International Relations
State Commission for Investment
Politických vezňu 11
Prague 1

Mr. Vladimir Matějka
Secretary of Advisory Department for Mechanization
and Automation of Engineering
Václavské nám 55
Prague 1

Mr. Josef Měštánek
Head of the Department of Economics and Finance
Research Institute for Building and Architecture
Letenská 3
Prague 1 - Malá Strana

Mr. Ladislav Šabart, Ing.
Research Worker, Department of Industry,
Research Institute for Building and Architecture
Letenská 3
Prague 1 - Malá Strana

Mr. Jiří Turek, Ing.
Research Worker
Research Institute for Mechanizations and Automation
of Production of Building Parts and Structures
Jungmannovo nám 8
Prague 1

ANNEX IV

LIST OF PARTICIPANTS

A. Fellow participants

Country	Name	Position	Address
Argentina	J.L. Vietti	Adviser in Industrial Branch	Development National Council Hipólito Yrigoyen 250-8 Piso Of. 834 Buenos Aires
Bolivia	C. Alipaz Alcazar	Economista, Sector Minero	Nacional de Planificación y Coordinación La Paz
Brazil	M. Cunha da Silva	Assessor Industrial Development Company	Ministério da Industria e Comércio Copacabana Rio de Janeiro
Bulgaria	I.G. Ivanov	Scientific Research Economic Institute	pl. "Slaveikov" 4 Sofia
Ceylon	G. Gunatilleke	Assistant Secretary	Ministry of Industries and Fisheries 347, Nawala Rd. Rajagiriya
Chile	A. Millán Urzúa	Chief, Project Evaluation Office	Ministerio de Hacienda Eliodoro Yanez 2974 Santiago
Colombia	I. Parra-Peña	Director of the Division	División de Estudios Económicos Globales del Departamento Administrativo de Planeación Ap. Aéreo 12019 Bogotá

Fellow participants (cont'd)

Country	Name	Position	Address
Congo (Brazzaville)	J.M. Moumbounou	Commissaire au Plan	Commissariat au Plan de la République du Congo, B.P. 64 Brazzaville
Cuba	M.A. Figueras	Director General of Perspective Planning	Ministerio de Industria Havana
Ghana	T.M. Dade	Senior Assistant Secretary	State Enterprises Secretariat P.O. Box 1627 Accra
India	S.D. Joshi	St. Deputy General Manager, Foundry Forge HEC.	Heavy Engineering Corporation, (Ministry of Commerce Industry) Dhruwa Ranchi Bihar
Iran	K. Iravani	Chief	Centre for Industrial Development, Ministry of Economy 66 Av. Hoghughi Teheran
Iraq	B. Al Dabouni	Director	Economic Assistance Section Ministry of Industry Baghdad
Israel	Ben Zion Shapira	Deputy Director	Industries Division Ministry of Trade and Industry Ramat Hasharon
Jordan	S.F. Kawar	Head	Industry Sector Planning Division Jordan Development Board P.O. Box 555 Amman

Fellow participants (cont'd)

Country	Name	Position	Address
Liberia	J.J. Bright	Economist Research Officer	Office of National Planning Monrovia
Malta	A.E. Camilleri	Cost Accountant	Department of Industry 74/7 Dingli Circus Sliema
Mexico	A. García Macías	Chief	Economic Projections Division Nacional Financiera S.A.
Nepal	R.L. Shrestha	Section Officer	Ministry of Industry and Commerce 5/740, Shochhe Tale Katmandu
Nigeria	G.A. Fatoye	Administrative Officer	Ministry of Industries Lagos
Perú	N. Campos Moscoso	Ing. Químico	Departamento de Proyecto José Leal 1450 Lima
Romania	Gheorghe Sica	Deputy Manager	State Committee for Planning Calea Victoriei 152 Bucharest 22
Thailand	K. Sombatsiri	Chief Economic Planning Officer	Planning Office National Economic Development Board Bangkok
Trinidad and Tobago	F.A. Richardson	Acting Head	Department of Mechanical Engineering University of the West Indies St. Augustine Trinidad

Fellow participants (cont'd)

Country	Name	Position	Address
Tunisia	T. Mazigh	Directeur-adjoint	Secretariat d'Etat au Plan et l'Economie Nationale Tunis
Turkey	B.S. Akgur	Chemical Engineer-Adviser	Ministry of Industry Plan and Project Commission Kurt Dereli Sokak 19 Ankara
United Arab Republic	A.M. El Barbary	Director General	General Organization for Industrialization Ministry of Industry 6 Khalil Agha Street Cairo
United Republic of Tanzania	S.K.G. Visram	Industrial Officer	Ministry of Industries, Industrial Promotion Department P.O. Box 234 Dar-es-Salaam
Yugoslavia	M. Pejović	Director	Investment Loans Department Yugoslav Investment Bank Terazije 7-9 Belgrade
Zambia	E.M. Situmbeko	Executive Trainee	Industrial Project Evaluation Industrial Development Corporation P.O. Box 1935 Lusaka

B. Observers from organizations and institutions

Name	Title	Organization
M. Reza Amin	Deputy Managing Director	Industrial and Mining Development Bank of Iran P.O. Box 1801 Teheran, Iran

Observers from organizations and institutions (cont'd)

Name	Title	Organization
J. Bedrunka	Head of Section	State Commission for Promotion of Science and Technical Progress Prague 6 Czechoslovakia
B. Berkoff	Assistant to Managing Director	Commonwealth Development Finance Co.Ltd. 1 Union Court Old Broad Street London E.C.2 England
Jerzy Bogusz	Director	Expert Panel for Investment Project Evaluation in Planning Commission Warsaw, Poland
Jaroslav Brisa	Chief	Department of Reproduction of Basic Funds, State Planning Commission Nerdlecká 959 Praha-Krc Czechoslovakia
André M. Bussery	Ingenieur en Chef	Société d'Economie et de Mathématiques Appliquées Organisation de coopération et de développement économiques (O.C.D.E.) 35 Boulevard Brune Paris, 14eme, France
Karl Cejka	Director of Ministry of Finance	Austrian Federal Ministry of Finance Wien XIII, Austria
William Cernienshy	Professor	University of Economic Sciences Prague 3 Czechoslovakia
Michael Ching	Chief, Industry and Mining Branch	Far East Engineering Staff Agency for International Development (A.I.D.) Washington, D.C.

Observers from organizations and institutions (cont'd)

Name	Title	Organization
Radu Corneliu	Engineer	Foreign Office Bucharest, Romania
Stefan Dantchev		Comité de Planification Sofia, Bulgaria
Herman J. de Nie	Expert on Industrial Promotion	Ministry of Foreign Affairs of the Netherlands
Milos Franc	Director	Austrian Federal Chancellory Vienna, Austria
Cecius Gyselynck	Manager	National Investment Corporation 8 Van Monckhoves Straat Gent, Belgium
André Huybrechts	Administrative principal	Communauté Economique Européenne Brussels, Belgium
Václav Kasalický	Vice-Director Research Institute for Construction and Architecture	State Commission for Investment Prague 1 Czechoslovakia
Frans Latus	Expert	Council of Mutual Economic Assistance Secretariat Moscow, USSR
Louis R.C. Lethbridge	Executive	Commonwealth Development Corporation London, W.1 England
Jacob Macht	Assistant Manager	Industrial Development Bank of Israel, Ltd. Ramat Gan, Israel
Otto Maschke	Deputy Head	Division of Technical Cooperation, Federal Ministry of Foreign Affairs Vienna, Austria

Observers from organizations and institutions (cont'd)

Name	Title	Organization
Aron Mukuri-Maka	Directeur du Crédit	Banque Camérounaise de Développement Yaoundé, Cameroon
Oto Matúš	Director of Department	Institute for Economics and Organization of Building Engineering Bratislava
J. Mugica y Rodríguez Cabo	Consultant	Secretaría de Hacienda y Crédito Público Mexico 1, D.F.
Avel J. Navarro	Economic Affairs Officer	United Nations Economic Commission for Latin America (ECLA)
N.A. A. Okuboyejo	Senior Assistant Secretary	Ministry of Economic Development Lagos, Nigeria
M. Rakowski	Director of Department of Investment Effectiveness	Institute of State Planning Warsaw, Poland
G. Rosales Mateos	Economic Analyst	Nacional Financiera S.A. Mexico 1, D.F.
K.E. Rosaberg	Research Fellow	Research Institute for International Technical Co-operation Aachen, Federal Republic of Germany
Josef Schmid	Director	Ministry of Trade Federal Ministry of Trade Vienna VII, Austria
L. Skibinski	Counsellor	Council of Mutual Economic Assistance Secretariat Moscow, USSR
Kiril Statev		Comité de Planification Sofia, Bulgaria
M. Rivera Espinosa	Economic Consultant	Secretaría de Hacienda y C.P. Mexico, D.F.

Observers from organizations and institutions (cont'd)

Name	Title	Organization
O. Stradal (Chairman of Symposium)	Professor	Prague Technical University Zikova 4 - Dejvice Prague 6, Czechoslovakia
Armando Taboada	Director General de Planificación Sectorial	Ministerio de Industrias Havana, Cuba
Max Thurn	Alternate Head Development Aid	Ministry of Finance Vienna, Austria
Tzemo T. Tzenov		State Planning Committee Sofia, Bulgaria
François J. Van Hoek	Head of Training Division, Development Centre	Organization for Economic Cooperation and Development Paris, France

C. Expert observers

Name	Title	Organization
Romolo Arena	Senior Director	Instituto Ricostruzione Industriale Via Veneto 83 Rome, Italy
Arturo Balboni	Official	Instituto Ricostruzione Industriale Rome, Italy
R.H.E. Berchem	Lecturer	Rheinishch-Westfalische Technische Hochschule Aachen, Federal Republic of Germany
Zdenke Blazej	Professor	Technical University of Prague Prague, Czechoslovakia
György Cukor	Deputy Director	Institute of Economics Budapest, Hungary
C.B. Edwards	Research Consultant	The Economist Intelligence Unit 27 St. Jame's Place London, S.W.1, England

Expert observers (cont'd)

Name	Title	Organization
Efim A. Elobin	Chief, Economic and Energetic Department	Institute "Hydroproject" Moscow MB64 USSR
Eustace P.C. Fernando	M.I.T. Research Associate	Massachusetts Institute of Technology (M.I.T.) 50 Memorial Drive Cambridge, Mass. United States of America
Hans A. Havemann	Professor, Director	Technical University Aachen Research Institute for International Technical Co-operation Federal Republic of Germany
William A.W. Krebs	Vice-President	Arthur D. Little, Inc. Acorn Park Cambridge 40, Mass. United States of America
Tillo E. Kuhn	University Professor	Center of Planning and Economic Research 6 Amerikis Street Athens, Greece
K.W. Leszczynski	Lecturer	Central School for Planning and Statistics Warsaw, Poland
Victor Lorenz	Professor and Vice-Dean of Faculty	Economic and Social Science University of the 17th of November Prague 2 Czechoslovakia
J. Martinez Benitez	Textile Engineer	Nacional Financiera S.A. Mexico 1, D.F.
Oleg Michailov	Chief Specialist	State Committee on Coordinated Scientific Work Moscow, USSR
H.T. Parekh	General Manager	Industrial Credit and Investment Corporation of India, Ltd. (ICICI) Bombay, India

Expert observers (cont'd)

Name	Title	Organization
Zoltan Roman	Deputy Head of Department	Central Statistical Office Budapest, II Hungary
Robert Schmelz	Director	Foreign Trade Research Institute Václavské nám. 41 Prague, Czechoslovakia
Uberto Tedeschi	Engineer Commercial Direction	ELC-electroconsult Via Chiabrera, 8 Milan - Italy
Gerard Thery	Chargé d'Etudes Economiques	Societé d'Etudes pour le Développement Economique et Social 67, rue de Lille Paris 7e, France
Z.W. Zajda	Lecturer	Central School for Planning and Statistics Warsaw, Poland
Manuel Zymelman	Professor	20 Hope Street Auburudale, Mass. United States of America

D. United Nations consultants

Name	Title	Address
Enrid B. Alaev	Chief, Research Department	State Committee on Coordination of Scientific Work Gorky St. 11 Moscow, USSR
Nuno F. de Figueiredo	Director of Industries	United Nations Commission for Latin America (ECLA) Av. Providencia 871 Santiago, Chile
Stephen A. Marglin	Assistant Professor of Economics	Department of Economics 1737 Cambridge Street Harvard University Cambridge 38, Mass. United States of America

United Nations consultants (cont'd)

Name	Title	Organization
Kali C. Mittra	General Manager	Industrial Development Bank of India Reserve Bank Bldg. Bombay 1, India
Marian Ostrowski	Economist, Chief Section of Central Planning Methods	Planning Commission Plac 3 Krzyzy 3/5 Warsaw, Poland

E. United Nations officials

Name	Title
E. Salamon	Director
F. Plasil	Administrative and Financial Officer
P. Sanghvi	Secretary
A. Belkora	Rapporteur

F. Guests of the host country

Professor Karl-Heinz Schultz
Vice-president of the German
Academy on Housing, Building
and Planning
Hannoversche Str. No. 30
104 Berlin

Gerda Steffen
Head of Section
German Academy on Housing,
Building and Planning
Hannoversche Str. No. 30
104 Berlin

Walter Lindenberg
Head of Department
Industrieanlagen-Export (INEX)
Köpenicker Str. No. 126
102 Berlin

ANNEX V

ADDRESS OF MR. JAN PILLER, DEPUTY PRIME MINISTER
AND CHAIRMAN OF THE STATE COMMISSION FOR INVESTMENT

Ladies and gentlemen, comrades,

The Government of the Czechoslovak Socialist Republic was pleased by the initiative of the Centre for Industrial Development of the United Nations to organize the Inter-regional Symposium on Industrial Project Evaluation, and entrusted me to welcome you on its behalf in the spirit of our traditional hospitality.

The issues chosen as topics of discussion centre around the complicated process of industrialization as a necessary prerequisite for the growth of the cultural and living standards of the people. This is a very difficult and important question. Consequently, we appreciate the initiative of the Centre for Industrial Development of the United Nations in organizing a mutual exchange of experience to try to avoid errors and mistakes in the field of capital construction which have occurred in various countries.

As a member country of the United Nations we consider this action a concrete step towards realization of the resolutions of the Committee for Industrial Development of the Economic and Social Council, aimed at helping the countries embarking upon the road towards industrialization.

We consider it our duty, arising not only from our membership in the United Nations, but also from our heartfelt sympathies to the developing countries, to place all of our experience acquired in the process of our own industrialization, at their disposal.

After liberation, our country inherited an industry which was not proportionately balanced, did not answer our requirements and was far from ensuring the standard of living we wanted to secure for our working people. Much has been done in that respect already. I believe, as one of the participants of this Symposium, that we shall have the opportunity to enrich our knowledge by the experience of other member countries.

Dear friends, allow me to stress particularly the fact that a successful solution of long-term industrialization problems necessitates a peaceful coexistence of all nations regardless of their social system and racial background.

Mutual understanding, personal contacts and exchange of experience are, as we see it, the best way towards creating friendly relations not only between individuals but also between nations.

The enthusiasm for a technical solution of high-level problems creates firm bonds of mutual appreciation and respect in spite of difference of opinion.

From its experience acquired in creating a socialist society Czechoslovakia has come to respect the endeavours of all countries to utilize the abilities and skills of their peoples, to develop and explore their own natural resources to the benefit of their nations, and to ensure their well-being in the future. As the host country we shall do our best to put at your disposal all our experience in the field in which you are interested. You will have the opportunity to discuss the forms and techniques of our work with our experts and to examine them thoroughly. In doing so we would like to give life to the aims of the discussion which Mr. Abdel-Rahman had in Prague in the summer of 1964, in his capacity as a United Nations Commissioner for Industrial Development, with our Government on the problems of the organization and purposes of the Symposium.

Ladies and gentlemen, comrades, this country is said to have cordial, hospitable and sincere people. We hope you will find some time to confirm these qualities.

Once again I wish you great success in your exacting work and personally I wish all of you a pleasant stay in our country, which, we hope, will contribute to friendly relations among our countries and peoples.

ANNEX VI

ADDRESS BY THE DIRECTOR OF THE SYMPOSIUM

Mr. Deputy Prime Minister, Mr. Kurka, Mr. Schejbal and Mr. Dudas, distinguished participants and observers, ladies and gentlemen,

It is an honour and a pleasure for me to express our sincere thanks and appreciation for the efficient help and generous hospitality extended by our host - the Government of the Czechoslovak Socialist Republic. We are particularly fortunate that it was possible for us to hold this gathering in this beautiful, old, golden city of Prague, which displays not only a variety of cultural and historical monuments of its glorious past but also reflects a high level of up-to-date achievements in cultural, social, economic and particularly industrial development. It seems to me that there could be no better place for a comprehensive exchange of experience and which would be more appropriate for creating a stimulating working atmosphere than this noble Valdstejn Palace. Indeed, a serene working atmosphere is needed for scrutinizing problems of a complexity such as we have chosen to deal with at this Symposium.

There is no longer any substantial controversy about the fact that a systematic and rigorous examination of the allocation of available resources is indispensable for the formulation of projects which would constitute a steady basis for an accelerated pace of industrial development. However, making a "best choice" decision is still very often extremely difficult and far from being obvious and a matter of common sense. It is also wise not to assume the easy availability of efficient management, of skilled personnel or other infrastructure facilities in developing countries. Therefore, it can be safely said that the complexity of an economic evaluation of projects in developing countries seems to be commensurate with its importance. For these reasons the Committee for Industrial Development unanimously recognized at its fifth session, held in May 1965, that the formulation and evaluation of industrial projects is of strategic importance in industrial programming and development. The Committee considered that this Prague Symposium on Industrial Project Evaluation represents a valuable beginning of a sustained programme in this field of activity. The Committe deemed it essential that this Symposium be followed by regional and national workshops and by substantial technical assistance in this field, to be organized and carried out by the Centre for Industrial Development.

Bearing in mind the paramount importance of project evaluation, this Symposium proposes to devote its attention both to the investigation of the state of the art and theoretical basis as well as to the survey of current practices and experience in this field. As you have no doubt seen from the programme of work and studies prepared for the Symposium the documentation offers a range from very simple to very complex techniques. Four basic topics have been selected to approach the problems and issues of industrial project evaluation.

First, thanks to the expert contribution of most of the participants and observers it was possible to assemble a substantial body of experience in the

form of forty-five country and case studies, which are submitted for discussion. This material constitutes a basic issue of our Symposium and represents at the same time a complementary issue to the following three items. It offers a substantive factual source of experience to be drawn upon and learned from.

Second, in order to define the economic importance of project evaluation, it seemed necessary to investigate the preliminary steps and necessary elements in setting up industrial projects. It is expected that the discussion will make it possible to find out and define the essential links between the selection and evaluation of individual industrial projects and the over-all strategy of industrial development.

Third, departing from the obvious necessity that well-defined and clear criteria for project evaluation are a fundamental pre-requisite for a practical and meaningful procedure of appraisal of projects, we have attempted to streamline this issue before the Symposium in a way which would allow focusing the discussion and considerations on industrial project evaluation and on methods of applying them. Realizing that the relevant importance of a particular criterion varies not only from one country to another but from one stage of over-all development to another, it would seem impossible and even senseless to endeavour to hammer out a general priority list of criteria or even a uniform technique of applying them. Even though this fact may be well recognized, it will nevertheless be highly desirable to make an attempt to carve out of the often found conglomeration of various criteria, which are sometimes even unrelated to economic development, those criteria and methods which will facilitate the choice of priorities from an economic standpoint and at the same time set a price label to economically non-justifiable decisions. It is necessary to emphasize, therefore, that in evaluating an industrial project in a developing country it is indispensable to take into account national economic profitability. Ways to achieve this are not only of crucial importance but are also fairly complicated. It is with these considerations in mind that it is hoped that the deliberations of our Symposium will find answers to the intricate problems before us.

Fourth, follow-up activities which are a most important function in the practice of formulating, appraising and executing industrial projects must be given special attention by the Symposium. This function is also of crucial importance for the economic viability of future industrial undertakings.

It is hoped that this general approach will constitute a broad enough basis for a mutual exchange of views and experience with a view to enriching the knowledge in this field. We are confident that the Symposium will, through its deliberations contribute to the improvement of project evaluation techniques and thus help promote the accelerated industrial growth of developing countries. No doubt these deliberations will at the same time indicate future lines of research and offer a sound basis for providing Governments of the developing countries, at their request, with assistance in setting up specialized institutions for the formulation or evaluation of industrial projects.

ANNEX VII

OPENING ADDRESS OF PROFESSOR OLDRICH STRADAL
CHAIRMAN OF THE SYMPOSIUM

Honoured participants and observers, ladies and gentlemen:

I am greatly honoured by the function that has been entrusted to me. I shall try to the best of my ability to contribute to the success of this Symposium.

In the last few years technical development has been growing very fast all over the world. At the same time the requirements of efficiency of new capital construction and equipment are getting keener. It is therefore a highly rewarding action of the Centre for Industrial Development of the United Nations to have arranged this Symposium with the purpose of seeking solutions to the many problems of industrial project evaluation.

In this opening statement I should like above all to make a few remarks about the prepared reports for our Symposium and to express my personal views on the approach to our work and deliberations.

The Centre for Industrial Development has assembled for our Symposium more than one hundred valuable contributions from distinguished experts in a broad spectrum, covering theoretical studies as well as practical experiences in industrial project evaluation. As the extension of this coverage shows, the problem of industrial project evaluation is of first rate importance and urgency.

For several years I have been devoting myself to the task of project evaluation at the Technical University in Prague. I would like to say in this respect that the submitted material is largely sufficient for:

i) The choice of project evaluation methods which will be of great value for the contemplated Manual;
ii) The understanding of some progressive methods of project evaluation;
iii) The identification of pioneer methodology observing further detailed investigation.

A tremendous progress has been achieved in modern science and technology by the development of atomic energy, space, travel, etc. It is necessary to give the same impetus to the investigation of exact economic methods. It is further necessary to spread these sophisticated methods as soon as possible in order to diminish the present gap between theory and practice. Our Symposium constitutes the first step to this extension of new methods, and I hope a successful one.

In regard to our deliberations we have to bear in mind some main principles to unify our procedures. I would recommend to the participants:

i) To focus their contributions strictly on the topic under discussion;
ii) To use as much as possible a uniform terminology.

In this respect the paper of Mr. Sonny, dealing with terminolcgy is of special value and I should like to recommend it to your attention.

The submitted material contains studies on experiences of industrial project evaluation as well as suggestions of new progressive methods, with a mathematical approach. These new methods are of great importance for they seek exact solutions of the problem of project evaluation. I am convinced that the quickest extension and wide usage of these exact methods is the most desirable thing we can accomplish. Industrial project evaluation which is still in its formative stages must become as soon as possible a universally recognized scientific branch.

We can clearly discern two orientations in this field:

i) Industrial project evaluation based on the comparison of indices of new projects with standard indices;
ii) Industrial project evaluation based on mathematical models of operations research.

Our experts have presented to this Symposium reports pertaining mostly to the first point. Our purpose was to contribute immediately to the progress and quick spreading of these methods among all interested participants, because the present experiences allow for such immediate application. This method will be demonstrated for you in your forthcoming meeting with our designers and with the representatives of the State Planning Commission and of the State Commission for Investment. We hope that these practical demonstrations will be of value to you.

Concerning the second point on the application of mathematical models, we will try to make you acquainted with the result of our investigations in this field.

Furthermore, we would like to make you acquainted with our new large-scale survey of resources including natural resources as well as skills and aptitudes.

In conclusion, we propose that the best way to contribute to the Symposium is to share with you in the first place our acquired experience. Secondly, we want to create for you a proper working atmosphere, in order that you may concentrate undisturbed on the solution of our mutual problems. In this respect, in my capacity as Chairman of this Symposium, I would ask you to confer with me during the course of the Symposium on any of the suggestions that may improve our deliberations.

May I express my personal wish that this Symposium be crowned with success and that it fulfil its mission.

ANNEX VIII

MESSAGE FROM DR. I. ABDEL-RAHMAN, UNITED NATIONS COMMISSIONER FOR INDUSTRIAL DEVELOPMENT

The efforts of the United Nations in the economic field have been marked in recent years by an increasing concern with the need to promote and accelerate the industrial development of the poorer nations. The key importance of industrialization for the development of the economically less developed countries is not disputed any longer. What we are concerned with at present is the ways and means of assisting the developing countries in their industrialization efforts. The holding of this Interegional Symposium on Industrial Project Evaluation is a tangible exponent of this drive and has been inspired not only by the recognized need for improving the techniques of project formulation in the field of industrial development, but also by the realization that the development of an adequate capacity for the evaluation and formulation of industrial projects in each of the industrializing countries can be achieved only through a sustained and large-scale training effort. It is our hope that the serious efforts that you have put into the preparation of the many important subjects to be covered by your deliberations at the Interregional Symposium, will lay the foundation for an organized body of knowledge applicable in the developing countries in the form of systematic procedures, criteria and methodology in the industrial project evaluation.

It has been particularly gratifying to us in the United Nations Centre for Industrial Development that the idea of holding a Symposium on Industrial Project Evaluation should have elicited such a favourable response from many national and regional institutions throughout the world. I especially wish to express our gratitude to the many distinguished experts from both the developed and developing countries who have contributed more than one hundred individual studies on various aspects of project evaluation and formulation which in themselves represent a comprehensive body of literature in this field. We hope that this fund of knowledge together with the results of the technical discussions to be held on the subjects included in the agenda of your meeting will provide the basic teaching materials for national and regional courses in industrial project evaluation to be organized subsequently for the training of government officials and specialists in developing countries.

I have no doubt that the holding of this Symposium will give added stimulus to the further intensification of the activities focused on the needs and problems of industrialization in developing countries. It could also be considered a further step within the many preparatory activities that are being initiated for the holding in 1967 of an international conference or symposium on the problems of industrial development under the auspices of the United Nations.

May I take this opportunity to express my thanks to the Government of the Czechoslovak Socialist Republic, which has graciously offered host facilities for this gathering. We are particularly appreciative of the excellent cooperation we have received from the authorities in connexion with all the arrangements necessary for holding the Symposium.

Our gratitude also goes to the Governments, specialized agencies of the United Nations, expert consultants and organizations who have generously given their active support and co-operation for this undertaking.

To all participants may I extend my best wishes for a successful meeting.

ANNEX IX

MESSAGE FROM DR. VICTOR HOO, UNITED NATIONS
COMMISSIONER FOR TECHNICAL ASSISTANCE

On the occasion of the opening of the Symposium on Industrial Project Evaluation I would like, on behalf of the Secretary-General of the United Nations, to express great appreciation to the Czechoslovak Government for its generous support as co-sponsor in providing host facilities for this project, which is part of the United Nations programme to promote industrial development. Please express to participants my warmest welcome and best wishes for the success of this Symposium, which has met with keen interest from the invited countries.

ANNEX X

LIST OF REFERENCE DOCUMENTATION

A Preliminary steps in setting up industrial projects

1. Relation of projects to the general strategy of industrial development

Symbol	Author	Title
CID/IPE/A.3	György Cukor	Project Evaluation and the Consistency of the Plan
CID/IPE/A.5	Agency for International Development	Beyond Project Evaluation
CID/IPE/A.7	André Huybrechts	Strategie du Developpement Industrial: Programme d'études Generales pour les Pays Associes á la Communauté Economique Européenne
CID/IPE/A.11	N.F. Figueredo	Project Evaluation and Industrial Development Programming
CID/IPE/D.20	Romolo Arena	The Growth of the Internal Market in Relation to the Strategy of Economic Development

2. Essential elements in the preparation of industrial projects

CID/IPE/A.2	Eustace P.C. Fernando	Implementation of Industrial Development Programmes using Critical Path Network Theory
CID/IPE/A.9	S.J. Langley	Essential Elements in the Preparation of Industrial Projects
CID/IPE/A.10	Council for Mutual Economic Aid	Standard Designing in Industrial Construction in the CMEA Member-Countries and its Evaluation
CID/IPE/B.3	Momcilo V. Pejović	Uncertainty in Industrial Project Evaluation with Special Reference to Export Industries
CID/IPE/B.8	Michael Ching	Industrial Project Evaluation and the Engineer
CID/IPE/B.21	ELC-electroconsult	Study of Industrial Plant Systems

3. Requirements of data and other information for, and institutional aspects of, industrial project evaluation

Symbol	Author	Title
CID/IPE/A.1	K.C. Mittra	Project Evaluation - Data and Other Information Required for the Purpose
CID/IPE/A.4	J.D. Nyhart	Organizing Professional Cadres for Industrial Project Evaluation, Selection and Follow-up
CID/IPE/A.8	H.A. Riker, Jr.	A New Approach to Training Managers for Industrial Development
CID/IPE/A.6	Industrial Credit and Investment Corporation of India, Ltd.	Information Required by ICICI Ltd. for Project Appraisal from their Clients
CID/IPE/A.12	Viktor Lorenz Zdenko Blažej	Requirements for Data and Other Information for Evaluation of Industrial Projects

B. Considerations in evaluation of industrial projects

4. Criteria for industrial project evaluation

(a) Commercial profitability and national economic profitability

CID/IPE/B.9	A.K. Sen	General Criteria of Industrial Project Evaluation
CID/IPE/B.10	Stephen A. Marglin	The Rate of Interest and the Value of Capital with Unlimited Supplies of Labour
CID/IPE/B.20	John H. McArthur	Application of the Discounted Cash Flow Technique in Developing Countries
CID/IPE/B.26	T.E. Kuhn	Evaluation of Industrial and Infrastructure Methodology and Practical Experience
CID/IPE/B.28	Thomas Vietorisz	Project Evaluation in the Presence of Economies of Scale and Indivisibilities
CID/IPE/B.33	C.D. Foster	Problems of Commercial and National Profitability

Symbol	Author	Title
CID/IPE/B.35	O.A. Michailov	Mathematical Methods in Industrial Project Evaluation
CID/IPE/B.36	Stephen A. Marglin	Public Investment Criteria Benefit-Cost Analysis for Planned Economic Growth
CID/IPE/B.39	Enrid B. Alaev	Methods of Technical and Economic Foundation of the Development of Industrial Centres
CID/IPE/B.44	J.H. Reedy	Integration of Accounting and Economic Concepts of Costs and Benefits in Evaluation of Industrial Projects
CID/IPE/B.48	Jaime Martínez Benitez Gustavo Rosales Mateos	Programación y Evaluacion de Proyectos Industriales
CID/IPE/B.49	Council of Mutual Economic Aid Secretariat	Methodological Principles for Comparing Economic Efficiency of Capital Investments

(b) Other criteria (linkage considerations, skill formation, composite criteria, etc.)

CID/IPE/B.4	Manuel Zymelman	Skill Requirements in Manufacturing Industries
CID/IPE/B.5	Sanford Cohen	Requirements of Skilled Personnel for Industrial Projects and their Appraisal
CID/IPE/B.6	Morris J. Solomon	A System of Industrial Project Evaluation
CID/IPE/B.7	William H. Newman	Managerial Requirements and Their Appraisal in Industrial Project Evaluation
CID/IPE/B.11	Zoltan Román	Inter-Industrial Aspects of Project Evaluation
CID/IPE/B.12	Gabriel Siri Sanglas	Some Considerations on the Relationship Between the Industrial Projects and Transport Services
CID/IPE/B.14	Vilian Cerniansky	Criteria of Economic Integration in the Industrial Project Evaluation in Developing Countries

Symbol	Author	Title
CID/IPE/B 15	Vlastimil Halaxa	A Study of Environmental Considerations in Industrial Project Evaluation with Special Reference to the Productivity of Labour
CID/IPE/B.31	Edward B. Roberts	A Systems Methodology for Evaluating Industrial Projects in the Context of National Strategies
CID/IPE/B.37	K. Leszczynski	Economic Criteria for Choice of Techniques in a Social Economy
CID/IPE/B.38	Enrid B. Alaev	Evaluation of an Industrial Project from the Point of View of a Rational Location of Productive Forces
CID/IPE/B.40	A.H. Stoneham	Management as a Factor in Project Evaluation
CID/IPE/B.41	M. Yamada M. Yokomizo	Skill Formation in Japan
CID/IPE/B.42	Z. Zajda S. Zawadzki	Choice of Location in Industrial Project Evaluation
CID/IPE/B.43	K. Baba T. Unno	Assessment of Factor Endowments in Industrial Project Evaluation
CID/IPE/B 45	Research Division Centre for Industrial Development, United Nations	Combined Criterion for Investment in Manufacturing Industries in Developing Countries
CID/IPE/D.6	A.M. El Barbary	Influence of Local Conditions on Project Feasibility Studies in Developing Countries

(c) Survey of current practices and theories in the field of industrial project evaluation

CID/IPE/B.1	Centre for Industrial Development	Evaluation of Projects in Predominantly Private Enterprise Economies
CID/IPE/B.2	Centre for Industrial Development	Evaluation of Projects in Centrally Planned Economies
CID/IPE/B.16	J.S. Tryon F.E. Cookson	Project Planning in Developing Countries: A Framework and Major Issues

Symbol	Author	Title
CID/IPE/B.18	The Economist Intelligence Unit	Industrial Project Evaluation in the United States and the United Kingdom and France
CID/IPE/B.19	A.C. Harberger	Survey of Literature on Cost Benefit Analysis for Industrial Project Evaluation
CID/IPE/B.23	M. Rakowski	Problems and Methods of Research into the Effectiveness of Investment in Poland
CID/IPE/B.24	Miklós Turanszky	The Economic Evaluation of Productive Investments in Hungary
CID/IPE/B.32	O. Ferfecký	Methodology of Industrial Project Evaluation in Czechoslovakia

5. Pricing problems with special reference to foreign exchange and foreign trade considerations

CID/IPE/B.13/R.1	J.R. Meyer	Capital Budgeting and Pricing Techniques
CID/IPE/B.27	Robert Schmelz	Foreign Trade Criteria in Industrial Project Evaluation
CID/IPE/B.29	J.S. Flemming M.S. Feldstein	Shadow Prices in Industrial Project Evaluation
CID/IPE/B.30	M. Ostrowski Z. Sadowski	Pricing Problems in Industrial Project Evaluation
CID/IPE/B.34	L. Csapo M. Mandel	Criteria for Evaluation of Industrial Projects in an Open Economy
CID/IPE/B.46	Michael Bruno	The Problem of Making the Best Selection of Export-promoting and Import-substituting Projects

6. Appraisal of financial aspects

CID/IPE/B.17	Joel Dean	Financial Planning of Industrial Projects and Their Appraisal
CID/IPE/B.22	Charles M. Williams	Appraisal of Financial Needs for New Projects

Symbol	Author	Title
CID/IPE/B.47	Gheorghe Sica	The Use of Financial Economic Criteria in the Location of New Industrial Units

C. Follow-up and supervision of industrial projects

7. Follow-up of approved projects

CID/IPE/C.1	H.T. Parekh	Follow-up Procedures and Practices
CID/IPE/C.2	B. Berkoff	Follow-up

D. Survey of country experience

8. Review of industrial project evaluation in developing countries including case studies

(a) Country experience

CID/IPE/D.2	José Lorenzo Vietti	Argentina's Experience in Industrial Project Evaluation
CID/IPE/D.4	Miguel Figueras	Planificación Global y Evaluación de Proyectos
CID/IPE/D.5	M. Reza Amin	Criteria for an Experience in Project Evaluation
CID/IPE/D.9	Pakistan Industrial Credit and Investment Corporation, Ltd.	Governmental Assistance in Establishing Industrial Projects in the Private Sector
CID/IPE/D.10	S.U. Durrani	Scope of Governmental Assistance in the Establishment of Projects in the Private Sector of Industries - Lessons from Experience of Pakistan
CID/IPE/D.11	Ivan Ivanov	Selected Methodological Problems of Economic Efficiency in Capital Investment in Bulgaria
CID/IPE/D.12	Momcilo V. Pejović	System of Appraisal of Industrial Projects in Yugoslavia
CID/IPE/D.13	G.A. Patoye	Experience in Industrial Project Evaluation in Nigeria
CID/IPE/D.14	Isidro Parra-Peña	Colombia Experience in Industrial Project Evaluation

Symbol	Author	Title
CID/IPE/D.15	Nigeria Industrial Development Band, Ltd.	Project Evaluation in a Develcpment Bank
CID IPE D 16	ICICI	Appraising an Industrial Project in India
CID/IPE/D.17	C.P. Angel Parnas	Criterios Para la Seleccion de Proyectos Industriales en Cuba
CID/IPE/D.18	K. Iravani	Development Activities in Iran
CID/IPE/D.19	Behzat Akgür	Project Evaluation and Development Planning
CID/IPE/D.23	Samir Kewar	Industrial Project Evaluation in Jordan
CID/IPE/D.25	C. Alipaz Alcazar	Evaluacion de Proyectos en Bolivia
CID/IPE/D.26	B. Al-Dabouni	Projects for Industrial Development in Iraq
CID/IPE/D.30	Krit Sombatsiri	Industrial Project Evaluation in Thailand
CID/IPE/D.35	V.A. Richardson	Technical Education in the West Indies; Project Proposal
CID/IPE/D.36	G. Gunatilleke	Evaluation of Industrial Projects in Ceylon
CID/IPE/D.39	A.M.K. Mazari	Experience of the West Pakistan Industrial Development Corporation in Developing the Industrial Potential in Pakistan
CID/IPE/D.40	Instituto Mobiliare Italiano	Financing of Industrial Projects
CID/IPE/D.41	Gordian O. Nworah Harrison Akpan	Summary Analysis of Country Experience in Industrial Project Evaluation
✓ CID/IPE/D.43	Tzeno Tzenov Kosta Kostor Stefan Dantchev	Technical and Economic Industrial Project Evaluation

Symbol	Author	Title
CID/IPE/D.44	Tewfik Mazigh	L'Importance du Cadre Institutionnel dans l'Evaluation des Projets Industriels
CID/IPE/D.45	Industrial Finance Corporation of India	Criteria for Evaluation of Industrial Projects
CID/IPE/D.46	T.M. Dade	Project Evaluation of State Enterprises in Ghana
	(b) Case studies	
CID/IPE/D.1	A.H. Camilleri	Conversion of Malta Dockyard
CID/IPE/D.3	N.M. Campos	Ampliación de la Planta Siderúrgica de Chimbote Proyecto
CID/IPE/D.3 (Anexos)	N.M. Campos	Ampliación de la Planta Siderúrgica de Chimbote Proyecto (Anexos)
CID/IPE/D.7	Harvard Business School	Selected Harvard Business School Case Studies
CID/IPE/D.8	S.D. Joshi	Foundry Forge Project
CID/IPE/D.12 (Annex)	M.V. Pejović	Application for Credit for Cement Factory
CID/IPE/D.14 (Annex I)	J. Otero T.	Estudio y Evaluación de las Propuestas Para Ensamblar Vehículos Automotores
CID/IPE/D/14 (Annex II)	I. Parra-Peña	Una Metodología Para Evaluar Proyectos de Ensamblaje Automotor
CID/IPE/D.21	Stanford University	Case Study of the Textile Fabrics Corporation
CID/IPE/D.22	Hans A. Havemann	Operational Planning of a Sponge Iron and Continuous Casting Rolled Steel Production Process
CID/IPE/D.24	A. Blanca Gonzales	Estudio de Factibilidad Planta Para Fabricación de Peróxido de Hidrógeno (Agua Oxigenada)
CID/IPE/D.27	Arthur D. Little, Inc.	A Men's Hosiery Manufacturing Facility for Nigeria
CID/IPE/D.28	Arthur D. Little, Inc.	Feasibility of a Cassava Starch Industry in Nigeria

Symbol	Author	Title
CID/IPE/D.29	Arthur D. Little, Inc.	A Study of the Feasibility of Manufacturing Opportunities for Construction Products in Nigeria
CID IPE/D 31	Arthur D. Little, Inc.	Feasibility of Producing Hardboard and Particle Board in Greece
CID/IPE/D.32	Arthur D. Little, Inc.	The Feasibility of an Integrated Fish-processing Plan at Grand Rapids
CID/IPE/D.33	Arthur D. Little, Inc.	Feasibility of Fixed-Nitrogen Facility in the Philippines
CID/IPE/D.34	E.A. Elohin	Evaluation of Industrial Projects: Case Study on Power Industries
CID/IPE/D.37	K.E. Robberg R. Berchem	Planning an Integrated Steel Mill in a Developing Country
CID/IPE D.42	Carlos Quintana Gerardo Bueno Fernando Gonzales Vargas	Process and Site Evaluation for the Iron and Steel Industry in Mexico
CID/IPE/D.47	The Research Institute for Building and Architecture	Industrial Project Evaluation in Czechoslovakia: Selected Studies

9. General documents

CID/IPE/B.25	F.E. Cookson J.L. Tryon	Bibliography on Project Planning
CID/IPE/MISC.1		Summaries of Papers Submitted to the Interregional Symposium on Industrial Project Evaluation
CID/IPE/MISC.2	J. Sommy	Definitions and Explanation of Selected Terms Used in Industrial Project Evaluation
CID/IPE/MISC.3	Centre for Industrial Development	Issues and Problems

ANNEX XI

CLOSING ADDRESS OF THE CHAIRMAN

Honoured Participants of this Symposium or, by now, may I just call you Dear Friends:

Allow me to say a few concluding words, by which I shall try to characterize our common work during these three weeks.

First of all, I would like to express sincere appreciation for your active participation in all the deliberations of this Symposium, and for the indefatigable interest you have devoted to the difficult problems of this exacting subject. While deeply appreciative of your participation and constant attention, allow me to thank all participants, particularly for having created a very friendly atmosphere in which the difficult problems of individual project evaluation were, I believe, fruitfully discussed. Every report and every contribution to the discussions have proved to be of valuable help towards the solutions of such important and intricate problems.

Furthermore, allow me to express, in the name of all of us, our gratitude for the diligent work done by the Secretariat of this Symposium, the members of the United Nations Centre for Industrial Development, in organizing this Symposium.

The material received from the distinguished experts for this Symposium is so valuable that I do not hesitate to consider our deliberations of pioneering significance in this relatively new science of industrial project evaluation.

Although, in spite of manifest endeavours towards mutual understanding and agreement, there still remain certain divergent ways and approaches to the solution of the problems, I think that much can be gained if they are explicitly presented as parallel methods in the proposed Manual. It is recognized, however, that a far more difficult problem will arise in the elucidation and presentation of these methods in a manual form, and in a way that would facilitate solutions in several grades of complexity and accuracy.

I believe that the recommendations that have emerged from our extensive discussions will help immensely in formulating the future programme of work of the Centre for Industrial Development. These recommendations have been clearly stated in the Final Report. I should like, however, to recapitulate briefly those which the Symposium, in my view, has considered of overriding importance. More specifically, the Symposium recommends that the Centre:

1. Organize and hold as many workshops as eventually requested by the developing countries on a national or sub-regional basis;
2. Provide the Governments of developing countries, at their request, with assistance in evaluating existing or incoming industrial projects, to be rendered either by the Centre's staff members, by

technical assistance experts or by various institutions from the developed countries (designing institutes or consulting firms), hired for this purpose by the Centre or put at its disposal by the respective Governments of the developed countries;

3. Assist the Governments of the developing countries in setting up specialized institutions for the formulation and/or evaluation of industrial projects, in the form of Special Fund projects or of projects financed from voluntary contributions placed at the disposal of the Centre.

In conclusion, allow me to express to you our warmest thanks for visiting our country, and may I ask your kind forgiveness for any shortcomings you may have experienced during your stay with us. We have tried as best as we could to make you feel happy here in Czechoslovakia. On our part as host country, we have received two precious gifts:

First, the daily enrichment by new knowledge and experiences.

And then, and above all, in the moments of our being and working together, your precious friendship. We value this friendship as the highest gift, creating mutual understanding among the nations.

In the name of us all, I wish you full success in your further work.

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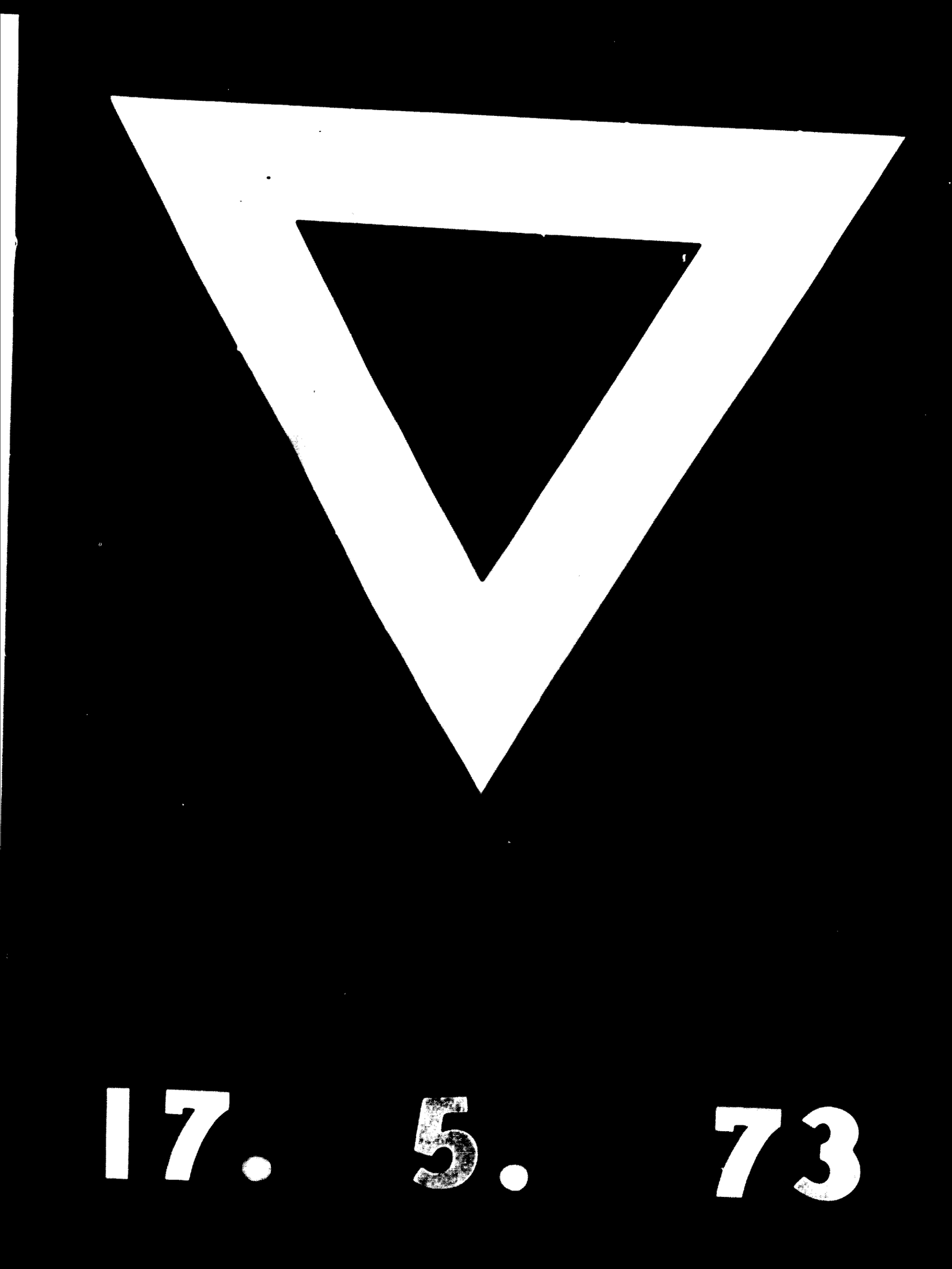

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