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SOME ASPECTS OF ADMINISTRATION OF PROJECTS WITHIN
THE CONTEXT OF DEVELOPMENT PLANNING

Paper submitted by the
Public Administration Division of the United Nations

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Paper prepared by the Public Adminis-
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SOME ASPECTS OF ADMINISTRATION OF PROJECTS
WITHIN THE CONTEXT OF DEVELOPMENT PLANNING

Project as a tool for development and development planning

1. Improvement in project administration can make a significant contribution to the process of national development. This is true whether projects are considered as segments of an integrated plan of economic and social development or as individually conceived schemes for the achievement of specific purposes.
2. Public sector projects constitute a major element in the national development programmes of many countries. Although they are more common in such fields as construction, transport, industries, and resources development, they are used in practically every sector. A project may be large or small, limited or comprehensive in scope, capital or labour intensive production or problem oriented; it may be limited to a specific sector or it may cut across a number of sectors. Common to all projects, however, are the following characteristics. First, a project emphasizes more immediate rather than very remote goals. It aims at the marshalling of resources and devising of methods to achieve these specific goals. In other words, a project by definition is action-oriented. Second, the substance of a project is non-repetitive. The kernel of the project concept lies in its application to other than routine activities of an organization or a government agency, for purposes of special emphasis and action. As a result of these two characteristics a project usually requires special administrative arrangements for the achievement of its specific objectives. The special administrative arrangements may involve creation of new organizational structure, new combination of existing organizations, and substantial reform of existing organization and administration. Frequently, a project involves separate but inter-related and interdependent activities which must be completed to achieve the objectives for which the project was instituted. This requires co-ordination of a large number of elements, which may necessitate creation of a new level of management or at least designation of clear locus of management responsibility within the existing organization for the realization of project goals.
3. The use of the project concept in development gives rise to certain administrative dimensions and problems which cannot be dealt with in a routine matter. It is common knowledge that a large number of public works and industrial projects take longer in construction and in reaching full production than originally

estimated. The cost generally turns out to be much in excess of initial estimates. Some projects are slowed down and never make the anticipated contribution to national development. Administrative deficiency and "routine" handling are among the important causes of such failures.

4. The purpose of this paper is to point out some of the major administrative aspects and requirements of development projects, with special reference to factors affecting their implementability and contribution to national development. We would like to emphasize the role of the project concept in development administration, either within the context of overall development planning or within the context of specific development efforts. This paper is part of our search for better tools of administration for national development. It is not, however, the purpose of this paper to enter into the controversy of project approach versus ~~over~~ **all** approach. Both approaches have a place in the analysis of development administration. In fact, the importance of projects in the total national development differs from country to country. In many countries, projects are used only for the purpose of obtaining external financing and aid. They are required by the international banking institutions as an instrument for considering loans. In most countries, a large part of the development efforts are handled by existing organizations and agencies as part of their normal work, while only special development efforts are put on a project basis. In some countries, however, the development of certain major programmes (for example, land reform and agricultural development, industrial development, etc.) are put on a project basis to achieve greater impact and better results.

5. The term "project" is used in the following discussion as a generic concept. No attempt is made to classify the projects into different categories and to state the unique administrative requirements of different types of projects. The emphasis is on the common administrative elements of projects irrespective of their size, sector or substance. These administrative elements should mutatis mutandis apply to all projects.

Phases of a development project

6. A development project has several phases. These may be roughly defined as:
- (a) Conception;
 - (b) Formulation;
 - (c) Analysis and evaluation;

- (d) Approval;
- (e) Implementation;
- (f) Reporting and feedback;
- (g) Transition to normal administration (ongoing concern);
- (h) Evaluation of results.

The different phases of a project are not necessarily sequential. Two or more of the phases may be under way at the same time and influence each other. This, in fact, is true in most cases. However, for purposes of analysing administration of development projects, it is desirable to discuss them separately to bring out their specific institutional and administrative problems. While some of the administrative and institutional aspects are pertinent to all phases of project administration, others may be unique to a particular phase. Difficult questions arise about the timing and scheduling of different phases. Responsibility for different phases of a project may have to be entrusted to different organizational entities, thus raising questions of division of tasks and appropriate administrative arrangements for carrying them out on the one hand and co-ordination of all the tasks in pursuit of the given objectives on the other. Accordingly, administrative aspects of development projects can be better understood by analysing them in terms of individual phases in the context of the overall project.

Conception

7. Most projects originate in existing departments or organizations, including the central planning agency. Even when impetus for a new project comes from outside sources, a department or organization usually has to adopt the idea to start the life cycle of a project. The suggestion for new projects from outside the agencies may come in as general or specific ideas. These may come from legislative bodies, political parties, political leaders, specialized institutions or from the public at large. Normally an existing government department or agency concerned with the function involved (for example, agriculture, health, education or industry) is the organization to process the ideas. In exceptional cases, especially those cutting across a number of development functions, a special committee or commission or working party may be formed to consider an idea and to transform it into a meaningful project for national development.

8. Many organizations in the developing countries are at present not geared to generate their own ideas or to process external ideas as the basis for new projects. This may be due to their preoccupation with day to day work or to their non-developmental orientation. In any case the result may be the initiation of projects on the spur of the moment, or proceeding with whatever ideas for projects may be available without careful analysis of their merit vis-à-vis other ideas for use of the same resources. Such projects may turn out to be highly realistic and important in terms of their implementability and contribution to national development. But they may often result in mis-application of effort and resources. At other times, resources may remain idle or unavailable because of the lack of well-conceived projects.

9. An analysis of the practice of planning in developing countries has brought out the paucity of well-conceived projects. This may well have been one of the reasons for the poor record of implementation of development plans. The planning agencies in some countries have tried to remedy the situation by undertaking themselves the initiation and preparation of projects. This is not always a satisfactory solution because the implementing agencies, which normally have much more technical personnel at their disposal than the planning agencies, may not give their whole-hearted support to projects which they feel have been thrust on them.

10. The lack of well-conceived projects is also a hindrance to the over-all national planning process. In the absence of projects, planning will remain too general and too aggregative to allow verification of its validity and to provide a concrete basis for its implementation. The national planning process, at least in ideal terms, implies determination of alternative uses of resources to realize desired objectives with the highest ratio of benefits to costs. Aggregative economic planning and economic programming are the basic exercises meant for this purpose. Development projects can provide the information to make these exercises meaningful and practical. As stated in one of the United Nations documents, Manual on Economic Development Projects^{1/} (Sales No.: 58.II.G.5) projects are "a link in the process of successive approximations involved in the technique of programming and an important element in the flexibility and continuous revision of the programme". Over-all planning inevitably includes a number of broad hypotheses and statements of probable outcomes. The formulation of projects can

provide the information to test the hypotheses by analysing the availability of usable resources for specific purposes and also the validity of expected results.

11. It should be borne in mind that project formulation is often a costly exercise, especially in fields such as resources development industries and transport. This is true even of preliminary studies of projects. On the one hand, an over-all planning based on well conceived projects would mean that a much larger number of projects will have to be prepared than would ever find a place in the development plan. The number of variables as well as of possibilities in the effective utilization of resources for national development is so great that the preparation of projects to provide the basis for choice can in theory become an endless exercise. On the other hand, this preparation is an important tool to impart realism and validity to national planning, and to provide the bricks and mortar for building the over-all edifice. At this stage of planning, while certain projects should have preliminary studies completed, a large number would remain at the "idea" stage with only technical comments available.

12. The task of limiting the number of preliminary studies required for this stage can be made manageable by developing well defined criteria that will regulate preparation of projects on a comparable basis, both within a sector and among different sectors. The following additional points will help, in practice, to keep the preliminary studies within a reasonable number:

- (a) To the extent that a country has developed information on its usable resources and environment, usually through surveys, it will have information on the major alternatives available for utilization in the context of its national ideals and aspirations;
- (b) In an ongoing administrative system, experience would have already indicated the important variables pertinent to development planning and the possible projects that can be prepared;
- (c) The projects do not have to be prepared in detail at this preliminary stage.

13. While we have cautioned about the cost involved in making preliminary studies, we should also mention that a project idea on which preliminary work has been done, but which is not included in the plan or approved for implementation, is not necessarily a waste of time and resources. If it is rejected because of

its unsuitability in terms of the criteria of national development, it would have avoided wrong allocation of resources. If it is postponed because it is judged to be of low priority, it may still be useful at a later date. The feasibility of a project should be determined not only in terms of the project itself, but also in terms of possible alternative uses of resources. In other words, a project can be really economically acceptable if there does not exist another project which would be more profitable for achieving the same objectives.

14. In some of the industrially developed countries, conception of projects is facilitated by research and development (R & D) departments both in the public and private sectors. R & D is now a well-recognized part of the activities of many ongoing industrial concerns in these countries. In fact, R & D is fast becoming one of the determinants of the value of the stock of a corporation in free enterprise economies. R & D departments, under one name or another are also becoming a major element in non-industrial public affairs. The need for equipping government departments to carry out such functions is particularly great in developing countries which are trying to accelerate their economic and social development through planned use of their resources.

15. The availability of well conceived projects and initiation of work on their formulation simultaneously with the initiation of the formulation of plans will improve their implementability. By the time a plan is finalized and approved, enough projects should be available to go in the implementation phase. In this connexion, it is important to point out that the relationship between planning and implementation is not so much sequential as cyclical. Projects are the link in the process of development planning, including formulation of plans and their implementation. The reciprocal relationship between over-all planning and projects is a strategic factor which has not received enough attention. This factor ought to be recognized and reflected in development administration. Among other things, this relationship underlines the co-operative nature of planning in which the central planning agencies as well as all other agencies concerned with specific sectors, programmes and projects have to participate actively. A natural corollary to this is the need for developing a planning and programming capacity in individual departments and agencies of government. The

departments which bear the brunt of development (for example, industries, transport, agriculture, health and education) must have organizational arrangements and qualified technical staffs capable of identifying, evaluating and preparing viable projects and of managing them effectively when approved. It may not be incorrect to say that part of the weakness of the present plans may stem from too much emphasis being placed on central planning agencies and not much attention being given departmental planning, including recognition of planning as an essential task of management at all levels.

Formulation

16. Once preliminary work has been done and a positive decision has been taken on a project idea, its formulation in greater detail becomes necessary. At the conception stage the project may be only an idea with rough estimates or preliminary studies of its desirability in terms of national needs as well as its possible cost and likely benefits. At the formulation stage, it has to be spelled out in greater detail and more specific terms, in order to enable the decision-making bodies to evaluate it and to approve (or postpone or reject) it. The formulation phase should lay the foundation and provide the blueprints for all other phases of project implementation and project administration.

17. The content of the prospectus or the proposal of a project will depend on national administrative practices and the processes of national and sectoral planning. The standards are generally set by central agencies which have authority to approve the projects. In some cases a project statement may include only data considered pertinent to allow appraisal of its economic merits. In others it may also include technical description of the project. In technical fields such as resources development, industries and transport, feasibility studies are undertaken at this stage. Sometimes a project proposal will deal with the relationship of the project to other projects within and outside the sector. Occasionally, the project formulation may include its budgetary implications at this stage although the general practice seems to be to relegate this aspect for subsequent action as part of the process of getting project approval. Rarely are the administrative requirements for the implementation of a project included in its prospectus.

18. There are several issues concerning the formulation phase of projects and the related studies required to be completed for their preparation. A codification of experience in this respect would be useful. Some of the administratively significant questions revolve around timing of formulating different aspects of a project, degree of detail to be prepared for each aspect at a given time, use of consulting firms in the preparation of projects, and the involvement in the preparatory phase of those who are to be eventually responsible for administration of projects.

19. The first issue one would face at the formulation phase is how comprehensively the project should be formulated. Comprehensive project formulation would include preparation of a detailed prospectus of the project giving its economic, technical, financial, organizational, managerial and other administrative aspects. The prospectus would include elaboration of different activities required to be carried out for the execution of the project and the time dimensions. This would require identification of temporal interdependencies and providing for them. Another approach would be to prepare the different aspects of the project formulation when actually needed. For example, the project may be formulated in terms of its economic implications for submission to the planning agency. If approved by the planning agency, the project may then be prepared for obtaining budgetary approval. This may be followed by technical preparation of the project. After all these aspects have been completed, attention may be given to the administrative requirements for its implementation. Those in favour of this approach would argue that if the processing of a project has to be postponed until all the required information has been developed, there may be considerable delay in the project's approval and execution. The counter-argument is that comprehensive formulation, which would mean preparing information on all aspects of a project simultaneously as an integrated whole, though time-consuming initially, will actually reduce delays in the subsequent phases, improve the utilization of scarce resources, and reduce the risk of miscalculation.

20. Part of the problem lies in the format of the prospectus. It frequently happens that information in respect of a project is developed and presented for a specific purpose and only on specific aspects. This information is not readily usable for other stages without recasting it and supplementing it with additional

facts. The project format should ideally satisfy the need of economic, physical and technical planners on the one hand and administrators, budget directors and managers on the other. The need, therefore, is for a project format which would serve all these purposes or at least allow the use of already available information for subsequent operations.

21. The initial work of formulation is closely related to the conception phase of a project and is done mostly by a government department. The department concerned is required to submit information on the location, cost, period of construction, manpower and materials required and financing of the projects. This information provides the basis for decisions on special surveys to be taken in connexion with the proposed project and for considering the desirability of appointing personnel or consultants for the preparation of the feasibility studies. Depending upon the nature and magnitude of the project and available talent in the government, particularly for projects in the industrial sector, governments may find that they have to engage consulting firms specializing in the formulation of projects. In order to facilitate the initial work required to be done by the departments and supervision by them of project formulation by consulting firms, it remains important that the departments have trained personnel to carry out these tasks. For certain highly technical projects, the use of consulting firms may be inevitable for a long time. Nevertheless, administrative capability needs to be developed in the government departments to deal with such firms and to supervise their work.

22. Administrative dimensions of the project, as pointed out earlier, are generally conspicuous by their absence at the formulation stage. This is partly due to the predominance of economic and technical feasibility considerations in formulating projects and partly to the lack of appreciation of the administrative dimensions. The preparation for the implementation of a project entails many decisions on administrative arrangements. It must be decided whether the project should be implemented by one of the existing government organizations or by a newly created agency. What kind of administrative measures or reforms will need to be undertaken to assure success of a project if an existing agency is to implement it? There are questions as to whether a special task force or a special project personnel unit under a Project Manager should be established within the

existing agency and, if so, whether there should be separate personnel arrangements for the project personnel. If a new agency is to implement the project, what kind of organization should be established? There are questions regarding categories and the number of personnel required, their availability and method of recruitment, training for skills which are not readily available and all other matters related to personnel administration. Training is a major dimension and should find a place in the project formulation. This would be particularly desirable for major projects which require a large number of trained manpower in scientific, technical and managerial fields. An analysis of the manpower requirements at an early stage would enable the initiation of steps for training of required personnel. In highly technical fields, projects may also be implemented by consultant firms with whom contracts can be made.

23. Equally important administrative questions pertain to the scheduling of project activities, procurement of inputs, co-ordination with other inter-related activities and a system for review and evaluation of progress. Careful planning of these aspects will not only eliminate delays but also assure efficient use of scarce resources.

24. The feasibility studies in fields such as industrial and resources development or transportation, which are often undertaken by consulting firms, have mostly dealt only with technical and economic feasibilities. The time has come to add administrative feasibility as part of such studies. The administrative questions raised above, including the availability of technical and managerial personnel, should be part of the administrative feasibility studies.

25. Frequently, a project may have to be formulated by one agency and implemented by another. This is especially true if the formulation is undertaken by a consulting firm. In such cases, it may be worthwhile to involve the agency which is to be responsible for the implementation of a project in its formulation. Some organizations follow the practice of appointing a project manager to be associated both with the formulation and with the implementation of the project. The project manager is thus able to bring forward, from the beginning, considerations bearing on implementability of the project. In turn, his association with this phase gives him a better understanding of different dimensions of the project.

26. The above are only illustrative questions. The point that needs to be emphasized is that the administrative dimensions of the project should be an integral part of its formulation. Initiating consideration of the administrative aspects, at this stage, would permit analysis and evaluation of alternative arrangements for project administration and crystallization of administrative steps for action by the time a project is ready to go into the implementation phase.

Analysis and evaluation phase

27. This is one of the most discussed phases of project administration. The discipline of economics has made a major contribution to the methodology of analysis and evaluation. Input-output analysis, cost-benefit ratios and market surveys are now well known tools of management. In fact, the project concept has been used and discussed more by economists than by any other group. This has inevitably tended to give an economic definition to the concept. According to such a definition, the project concept comes to be applied to capital investment proposals and their economic analysis for purposes of making choices among them. The Manual on Economic Development Projects, (United Nations Sales No.: 58.II.G.5), for example, defines a project as "the compilation of data which will enable an appraisal to be made of the economic advantages and disadvantages attendant upon the allocation of country's resources to the production of specific goods and services".^{2/}

28. From the point of view of over-all planning, such emphasis sounds logical. Also, as most of the major development projects involve financial aid and loans from credit institutions from within or outside the country and as banks (national and international) and most aid-giving agencies would normally prefer to finance specific projects, the "bankability" of projects tends to become the overriding consideration in their analysis. The appraisal of projects to determine their bankability may include some attention to the management aspects of the project, but would normally give attention to limited aspects of the administrative problems.

29. It is our contention that while analysis and evaluation of projects along economic and technical lines are extremely important in decision-making allocation of resources, the administrative aspect is equally important.

Since administrative feasibility of a project does not often form a part of the over-all feasibility studies, those responsible for analysis and evaluation of a project submitted for approval should insist on having at their disposal all the pertinent administrative factors. It may be pointed out that the administrative arrangements proposed to carry out the project under consideration will not only influence the performance of the particular project, but may also have far-reaching implications for the administrative system at large.^{3/}

30. Frequently, an aid-giving agency or a bank may stipulate broad administrative requirements of projects as part of conditions for their financing. This may also be done by national governments while financing the projects of the governments at lower levels, public corporations and autonomous organizations. Such conditions are often designed to safeguard the capital of the lending institutions and do not generally take into account the broader administrative aspects of project implementation.

31. There seems to be a great need to study and analyse both the administrative factors relevant to the success of project administration and the consequence of such factors for general administrative performance in a nation. This should enable the development of guidelines which throw light on the desirable administrative requirements of a project and which would contribute to general administrative improvement at the same time, or would at least avoid adverse effects.

32. Organizational arrangement for the implementation of a project is one of the major administrative problems. There is generally a tendency to create special organizations for project administration. This is not unnatural, since (as indicated in paragraph 2 above) the purpose of projects is the achievement of specific objectives. This may also be inevitable because there may be no organizations in existence which can carry them out, or the existing organizations may not have the capability to do so, unless a special task force or a special organizational unit is created within to do so. Personnel arrangement is another major administrative problem. The availability of suitable personnel often decides the success or failure of a project.

^{3/} Due attention in this connexion needs to be paid to the consequences of project administration on the general administrative environment.

33. It is important to relate the administrative problems of a project to the over-all administrative situation. A failure to analyse the administrative implications of the project in the context of over-all administrative problems and requirements may mean dislocation and uneven allocation of administrative resources to different sectors. The project by its very nature may get preferential treatment, thereby starving the rest of the administration in terms of qualified manpower and administrative leadership. Such a situation may eventually adversely affect the project itself. On the other hand, it may also be possible at times to use the project administration as an "island of excellence" which would radiate beneficial influence beyond its immediate scope and thereby generate administrative reforms in general. It is not possible to make any generalizations at this stage, except to say that the analysis should take these factors into consideration.

34. Evaluation and analysis of projects is a specialized job. This is particularly true of the industrial projects, resources development projects and major public works projects. Analysis and evaluation of such projects involve use of highly competent skills in administration, economics, engineering and other related fields. Rarely can all these techniques be furnished by the existing organization to evaluate the project. There is a growing need to provide for the establishment of organizations and the training of staffs to perform this **important function.**

35. Every project proposal has to be approved by a competent authority or authorities before it can be implemented. Approval may have to be obtained from several agencies such as the administrative department or departments concerned with the subject matter areas in which the project falls, a planning agency, budget authorities, the cabinet or similar executive organ, and/or legislative organs. Different phases of a project may also have to obtain approval in connexion with different over-all processes of administration. For example, a project which has been approved in principle as part of the formulation of a national or sectoral plan may have to be subsequently approved for inclusion in an annual development plan and annual budget. Again, the legal, financial, technical and administrative aspects of a project may be approved by agencies concerned as part of a single process or require separate action on each. As

development projects frequently involve investment of capital, allocation of foreign exchange and use of scarce resources, organizations concerned with these subjects also have to give their approval.

36. The phases of the project prior to approval should, in principle, generate information adequate to obtain the sanction of different authorities. In practice, the preparation of projects leaves much to be desired from the point of view of approving authorities. Some countries do not allow any new schemes to be included in their annual plans and the budgets unless such schemes have been fully worked out in detail and there is a reasonable assurance that requisite resources are available for their completion as scheduled.

37. The approval of a newly formulated project should be contingent not only upon the adequacy of the effort invested in the above-mentioned preparatory phases, but also upon the comparative merits of the specific project in competition with other possible alternatives. The acid test that the candidate project has to meet is that it must emerge from the process of choice among alternatives as offering the best claim upon scarce resources. Indeed, a major weakness of the project-by-project approach is that it may limit the scope of this competitive testing by perceiving one or few alternatives at a time.

38. The major test of the soundness of the approval process is the extent to which it provides for a "rational" choice as between sound alternatives. Unfortunately, in several situations, it has been observed that the approval process gets undermined by bargaining between the project-initiating and the project-approving agencies. In such cases, the pattern of relations emerging, such as between the project-initiating departments, ministries or agencies and the project-approving authorities on central planning organization may not represent a significant departure from the traditional pattern of relations, that between the Treasury or the Finance Department and the other departments of the government.

39. A bias for import substitution projects as well as for prestige projects has characterized the first development plans of a number of countries. Among other things, this bias reflects the weaknesses of the organization and process for identifying and analysing alternatives. Export-based projects call for a greater input of effort for marketing research. So is the case with projects

based upon the expansion of domestic demands. Again, projects based upon a comparative advantage of resource endowment necessitate an adequate survey machinery. Considering these weaknesses in the mechanism of searching for new investment opportunities, the range of competing alternatives tends to be limited; import substitution projects and politically strategic projects are often not confronted with genuine competition from soundly conceived "economic" projects.

40. Under the manifold pressures for accelerated action, the approving authorities often have to take hasty decisions. The inherent tendency is to settle for the second or the third best of possible alternative packages of projects. At the same time, the central planning or budget agency may find it politically difficult to question the validity of developmental results of the project package presented by a specific ministry or department of government. The many-sided tensions observed between the central agencies and the different ministries or departments testify to the difficult problems in this area.

41. The process of approval discussed in the preceding paragraphs can be considerably improved by the articulation of national goals in operational terms. This is not an easy task, particularly because there may be conflicting goals which have to be reconciled at times. Nevertheless, a clear statement of the criteria for the selection of projects will substantially improve the process of approving for implementation at least the largest projects.

42. In procedural terms, it is desirable to structure the approval process in such a way that it takes minimum time and yet allows thorough consideration of all the aspects by the approving agencies. A device which has been found useful by many countries is the appointment of working parties. Such working parties include the representatives of all the departments concerned with different aspects of the project and also those who are to give approval. The planning agency generally serves as the secretariat of the working party. The consideration of a project proposal by the working party shortens the time span required for the project's approval within the executive branch of government and also enables the participants to raise and answer questions and to better understand each others' positions.

43. Another important issue in the approval process is the degree of scrutiny to be undertaken by the approving agencies and particularly by the budget authorities. In order to enforce financial responsibility, the finance ministry may feel that it has to scrutinize every detail of the project. Such scrutiny, although basically in financial terms, affects the technical and management aspects of the project, as financial, technical and management considerations cannot be completely differentiated from each other.

44. Financial management has been the subject of administrative reform in many countries. The objectives of such reform is to ensure adequate financial control on the one hand and to allow the desirable flexibility for management on the other. Many countries initially resorted to the device of public enterprises or special authorities to administer major projects. In most cases, the creation of such entities was as much the result of the specialized nature of the projects to be undertaken as it was the desire to get away from the traditional controls exercised by the ministries of finance. The device has hardly been a complete success.

45. Some of these problems can be solved by the adoption of performance budgeting. Whereas performance budgeting may not be readily applicable to the totality of government operations for various reasons, most projects lend themselves to its application. The adoption of performance budgeting for projects can improve the process of budget approval by emphasizing expenditure in terms of results and leaving enough flexibility for use of budgeting as a tool of management.

Implementation

46. Some of the administrative factors pertinent to project implementation were pointed out earlier in this paper, especially in the sections on formulation and analysis and evaluation. Without trying to deal with the subject of implementation in detail, we shall limit our discussion here to certain more important administrative questions which call for special consideration, in order to ensure speedy and effective implementation of a project. Speedy and effective implementation is the basic criterion guiding administrative arrangements.

47. The foremost question relates to the organizational arrangement for implementation of a project. A project may be undertaken by (a) an existing or new organization without establishing a special unit to handle it; (b) by a new

special unit within an existing organization; (c) by a new government agency; or (d) entrusted to a contractor. Sometimes a project may have to be split up for implementation, partly by existing and/or new government agencies and partly by contractors. The kind of organizational arrangement to be made depends partly on the nature of the project and partly on the existing administrative machinery (including the personnel and efficiency of existing organizations). Each mode of implementation, while involving some identical considerations for the over-all management of the project, will pose different kinds of questions.

48. If the work is to be done by contractors, the government departments concerned will have to develop and administer a system of contracts. The use of contracts is quite common in the case of industrial and public works programmes in mixed economies. Contract administration is a technical and complex subject. Though some developing countries in the past may have used contract administration for limited purposes, the magnitude and complexity of present day development projects calls for streamlining contract procedures and strengthening capacity of government departments to effectively administer a system of contracts for implementation of major schemes.

49. If a project is to be handled by a new government agency, then the questions which have to be settled include the type of agency to be established, the degree of autonomy to be given to it, the extent to which it should be allowed to have separate personnel and other administrative arrangements from the general government practices and the safeguard to be adopted to ensure accountability. One type of organization usually adopted for industrial and other productive projects is public enterprise. Problems relating to the organization and administration of public enterprise have been dealt with in some of the publications issued by the United Nations.^{4/}

50. Assuming that a project is to be administered by a government agency, especially when this is done under (b) or (c) mentioned in paragraph 47 above, steps have to be taken to build the organization, to develop the operating

^{4/} In particular, see Report of the United Nations Seminar on Organization and Management of Public Enterprises (ST/TAO/M/35), Administration of Public Enterprises - Selected Papers (ST/TAO/M/36), and Role of Public Enterprises in Plan Formulation and Plan Implementation in Centrally Planned Economies (ST/TAO/M/37).

procedures, to hire and induct the people into jobs and to schedule the various activities required for the implementation of the project. The over-all framework for most of these activities may be provided by legislation or executive decrees authorizing and approving the project. Within these constraints, building of the organization is the most critical stage in the progress of a project. The transition from the drawing tables to action will be more manageable if the administrative factors were carefully considered and adequately provided for in the preparatory phases of the project. Otherwise, the building of the project organization will be greatly handicapped. The task will be particularly difficult when a completely new organization has to be created rather than building onto an existing organization to execute the project.

51. The appointment or designation of a project manager for the project is the first step in building a new organization or adopting an existing one. The early appointment of the project manager, as discussed in the section on formulation, has been found to be highly conducive to the success in the organization-building process. Having foreseen the actual requirements of the project, with time also to lay plans and line up top staff, the project manager should be able to proceed with the building of the project organization immediately upon approval of the project. In this connexion, the question of recruitment and selection of personnel assumes great significance. A basic question is whether the selection and appointment of personnel should be the responsibility of a central personnel agency. As the project manager is to be held responsible for the achievement of results, it is only fair that he should have the authority to build his own management team within the over-all standards laid down by the government. As a minimum, he should be associated with the selection of such persons if this is to be done by a central personnel agency. (At present, the common practice is to appoint an engineer or a technical person to serve as project manager of an engineering or technical project. A project manager with purely technical background often lacks the administrative and managerial capacity to run a project smoothly. Even one with administrative background may not have training and attitude to implement a project in a speedy and effective way. Therefore training in administration and managerial skill for all project managers would be most desirable. In this connexion, it may be pointed out that project managers should be selected from those who are dynamic, development-oriented and able to get things done quickly and effectively.)

52. The first task of the management team is to develop a detailed plan of organization and administration, including scheduling, budgeting, staffing, continuous evaluation, reporting, planning for contingencies, and the final transition stage. Most of the problems encountered in the implementation of a project can be frequently traced back to the shortcomings of these initial plans. The investigation of delays in a number of cases has consistently pointed to the lack of a detailed and realistic breakdown of the activities needed to implement the project, the assignment of realistic lead time, and the identification of the critical path involved in implementing the projects.

53. There are certain management techniques which are particularly relevant to administration of projects and can be readily applied to remedy the above-mentioned shortcomings. Among these, Network Analysis^{5/} may be mentioned as an example. Network analysis and its different variations like Critical Path Method (CPM) and Programme Evaluation and Review Techniques (PERT)^{6/} have found wide-spread use in the scheduling and administering of projects in industrially advanced countries and hold great potential for application in developing countries. Their use is not necessarily dependent upon the availability of computers as seems to be the general impression. The basic principles of network analysis can be applied to management without the aid of computers.

5/ For definition, see para. 54.

6/ Both PERT and CPM emphasize efficient performance and temporal dimensions of a project. In its most simple form, PERT views a project as a total system and consists of setting up a schedule of dates for various stages of a project, and exercise of management controls, mostly through project status reports, on its progress. CPM is basically a technique to reduce the time required to implement a project. By breaking a project into activities that must be undertaken for its implementation and by determining their time sequence, it is possible to isolate the most critical activities in the project and to compute the critical path schedule for their implementation. Network planning provides the basis both for PERT and CPM. In a way, these techniques have evolved from the Gant Chart Method.

54. Network analysis may be described as the blue-prints for the management of a project. Put in simple terms, network analysis involves breaking up the project in terms of activities and functions to be performed, studying the inter-relationships among them, bringing out the causality of each activity and function, and fixing a time schedule for each, to complete the project by the target date. There need not be a comprehensive network analysis in minute detail for the project as a whole. In fact there is room for developing a hierarchy of networks according to the levels of management. The top management may use network analysis based on broad categories. The lower level of management can develop more detailed network analysis for their respective activities and so on down the line.

55. In the course of implementation of development projects, the frequency of unpredicted delays and bottlenecks is a significant part of the reality to be reckoned with. The real costs (especially social costs) of frequent delays usually remain unaccounted for or insufficiently accounted for. The investigation of these delays is usually undertaken with a view to fix the blame and to place the responsibility. Very infrequently this kind of investigation yields valid data on the real deficiencies in the implementation process. In fact, scapegoating, passing the buck, defensiveness and rationalizations are the most frequent responses.

56. Among projects implemented by a number of existing organizations, some have faltered simply because the activities involved in their implementation cut across a number of government departments. For such projects, it has been the practice to designate one ministry with over-all responsibility. However, this sometimes would elicit the resistance or lack of co-operation on the part of others. Whatever may be the status for the new project, lack of co-ordination and co-operation might leave it cut off from the supportive services of the ministries or agencies concerned. An interdepartmental "task force" has proved to be a commendable practice in some of these situations.

57. Beyond the inter-departmental and interagency factors, project administration is affected by its larger administrative, political and social environments. The project has to draw its inputs from these environments. In turn its output must be acceptable to the environments. The administrative environment of the project (i.e., general legislative, administrative, budgetary and personnel practices of the country) are directly relevant to the performance of a project. Enterprise and leadership in project administration may overcome some of the difficulties created by the administrative context but it is bound to impinge on project performance. In view of the fact that the larger milieu is an inevitable influence on project administration, planning for successful implementation of projects requires

attention to environmental factors in addition to project administration itself.

Reporting and feedback

58. A system of reports and feedback is essential for the successful implementation of a project and its control by higher echelons of management who in turn may have to report to legislative bodies. The reporting system has to be designed to serve several purposes. Most important of all, feedback is required to ensure corrective action in the process of implementation. Flow of communications throughout the organization provides the basis for management decisions and operational activities. Reports are needed to enforce accountability of different levels both for assets and performance. Budget ministries are interested in the rate of expenditures and ensuring that spending remains within sanctioned limits. Substantive ministries, economists and planners expect data from the project which would help them in control; economic analyses and future planning. Legislative and political leaders may call for reports to perform their respective functions as watchdogs of the public interest.

59. The organizational structure and the use of management techniques like network planning will partly determine the reporting system. However, these will not automatically lead to the emergence of a reporting system which will serve all purposes. Establishment of such a reporting system would require special thought to become a meaningful tool of management and to generate information for other interested parties.

60. Traditionally, most of the reporting in government departments has been in terms of legal, budgeting and accounting requirements. These continue to be important in the case of projects but are not enough by themselves. An effective reporting system has to include several management considerations, some of which are as follows:-

- (a) The system should generate information which is available in time and is designed to be readily usable for decision-making.
- (b) It should establish both financial and performance accountability.
- (c) It should have a format which facilitates its use for more than one purpose.

(d) It should provide each echelon with the information it needs.

61. The reporting system can be abused by insisting on numerous reports at frequent intervals. Cases are many in which operating personnel have to spend a considerable part of their time in filling out reports. Legislative bodies, planning agencies, budget ministries, statistical bureaus, economic research institutes, administrative departments, central banks, labour ministries, as well as financing and aid-giving agencies may all call for separate periodic reports. Frequently, these reports overlap and may still fail to provide some of the information needed. Constant analysis of reporting procedures and co-ordination of information needs of different agencies can result in simplification and better use of the system.

62. One reporting technique for management purposes deserves special mention. It is the establishment of a central control room which can be used both for individual projects and for larger programmes. The room visually indicates the schedule and magnitude of activities to be carried out under a project. It shows the timing of needs, anticipated availability of different inputs, expected rate of utilization of inputs and stipulated targets. Against these is shown the actual progress based on reports from the operating personnel. The maintenance of such rooms, if kept up to date, can enable the administrators to identify the trouble spots and to take remedial action. The design and use of a reporting system in conjunction with the central control room can serve the purposes of management and accountability.

63. Certain projects, mostly in the industrial and resources development field (especially those taking the form of public enterprises), will retain their status as separate organizations. For such projects, the transition from the project or institution building stage to that of normal operation would be comparatively easy and simple, but would also encounter many of the problems discussed in the following paragraphs. For others, once a project has been completed, it has to be integrated into the ordinary administrative system. The transition is as important as the completion of the project itself. Yet advance arrangements for a smooth changeover are frequently neglected in

practice. The transition cannot take place automatically and has to be planned in a systematic way to protect the investment and to assure proper return on it. Some of the problems pertaining to this phase of project administration are organizational and procedural modifications, re-allocation of personnel, disposal of surplus assets, removal of "bugs" in operations and provision of maintenance services.

64. The completion of a project often requires dismantling of the project organization and transferring management of the project to an existing or a newly established organization. A successful project would have created assets like dams, electric plants, industrial installations, irrigation works or roads. The maintenance and use of these assets often requires organizational arrangements which are essentially different from those involved in their creation. In many cases, a network of new project organizations may be needed to exploit fully the contribution of new assets.

65. Dismantling of the old and the creation of new organization(s) will make many of the personnel who had worked on the project superfluous. At the same time, personnel may be needed with new skills. The project personnel, however, may represent a major reservoir of trained manpower which should not be allowed to fritter away. Planning is needed to re-allocate such personnel to other projects and to retrain them as appropriate. Simultaneously, attention has to be paid to the recruitment, training and induction of personnel who will manage the newly created facilities.

66. Like personnel, some of the assets will be released with the completion of the project. Construction machinery and equipment are generally the most tangible of these assets. Unless immediate action is taken about their subsequent use, they may be forgotten and allowed to deteriorate without proper care. Some countries have established central machinery pools which among other things can take over such assets and make full use of them on other projects.

67. When a completed project is actually put into operation, it may be discovered that there are some deficiencies in the equipment which have to be removed. Or, unanticipated developments may necessitate adjustments to the

project to optimize its use. If meeting these contingencies involves complicated procedures (e.g., for getting authorizations from different agencies), operation of the project may be considerably delayed. The expeditious handling of such contingencies should be considered an integral part of the project implementation stage to avoid subsequent difficulties.

68. The limited experience available on projects administration in the context of development planning also indicates that the authorities responsible for their implementation sometimes fail to provide for the maintenance of assets after creation. This is more likely to happen in the case of buildings and other public works in sectors like health, education and recreation. Failure to provide for maintenance may result in rapid depreciation of these assets. It may also mean that the initial planning in terms of financial requirements was faulty because it did not include maintenance costs which can be a significant proportion of the actual investment.

Evaluation of results

69. Evaluation of results achieved in a project is required in order to benefit fully from the experience. For example, some empirical investigations in certain countries have revealed a uniform pattern of errors of overestimation and underestimation in post-implementation costs and benefits as compared with the pre-implementation estimates. A cross section of industrial development projects was selected in a country with a view to undertake this comparison over a five-year period of implementation. The findings indicate a tendency to overestimate the contribution to export proceeds and the savings attendant upon import substitution as compared with what the actual contribution turned out to be. Also the tendency to underestimate the foreign exchange requirements has been consistent. Worthy of special note is the fact that the indirect import requirements were grossly underestimated especially in programming on a project-by-project or a sector-by-sector basis. This has subsequently proved to be the most serious bottleneck blocking the plan implementation. The period required for the project to enter into economical operation, or to reach the break-even point has also been consistently underestimated.

70. It is true that unanticipated developments can sometimes upset the estimates and time schedule of a project in the course of its implementation. But the significance of the above-mentioned research findings lies in the frequency and consistency of errors of overestimation and errors of underestimation. This can often be explained in terms of the concern of project formulators to meet criteria established to obtain project approval and by the absence of an independent validation mechanism. A post-mortem evaluation of projects can reveal the weaknesses in the original preparation of the estimates export.

71. It is widespread practice, when the expected results of a project or a programme fail to materialize, to blame the implementing agency and to contend that the project was good but the implementation was bad. In spite of frequent deficiencies in the implementation process, there are many cases of failure that can be traced to inadequate preparation or overly ambitious target-setting in which inadequate account was taken of the administrative feasibility of the project, and the necessity of fulfilling administrative requirements. It would be more useful to visualize the phases in the life-cycle of a project in terms of life-cycle of a project in terms of links in a chain and to think of project administration as a vehicle for making these links of equal strengths. Unless this is done, the weakest link would affect the performance of the whole project.

