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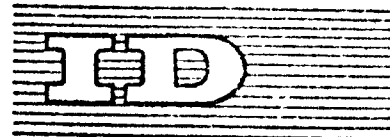
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IMPLEMENTATION
OF
CONSULTANTS RECOMMENDATIONS ^{1/}

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SUMMARY

The subject matter of this paper will be divided into three sections, implementation, control and review.

The first section, covering implementation of the Consultants recommendations, will be divided into two categories. One is where the Consultant is engaged to survey and advise on an existing installation or structure. The other is where the Consultant is engaged to prepare contract documents, call tenders, and administer a contract for the construction of civil engineering or building works, or for the installation of new equipment.

The second section of the paper will discuss the controls which must apply on all who are associated with a project, in order to ensure its success.

Those involved will include Client, Consultant and Contractor. Some examples will be given of actual projects where failure to observe the essential relationships between these three major roles led to a lack of proper direction and a less than satisfactory result.

The third section will discuss the criteria for the evaluation of the success of the consulting engagement and will include a review of the performance of the Consultant, his ability, his organisation and his application to the various tasks associated with his commission.

BACKGROUND

1. COMMISSIONING A CONSULTANT

Although other papers have covered in detail the subject of Client-Consultant relations and the role of the Consultant in both government and private development, these will be briefly referred to. Much of the success of any project will depend on the engagement of the proper Consultant at the optimum time for the project and also on complete Client-Consultant confidence. Many difficulties will stem from not making the right decision in the early stages of a project.

The value of a consultant's services will depend on the type of commission and the stage of development to which the project has been brought before the Consultant's advice is sought. If the Consultant is brought into a project when major decisions have already been taken, his contribution to the project will be limited by the restrictions of those decisions, and the full advantage of using a consultant will not be achieved.

2. SERVICES OF A CONSULTANT

First let us examine the maximum contribution a consultant can make to a project. Forward planning is vital to continuing progress and is the basis of successful development by government or private industry and should be on at least a five year basis. Forward planning must be a live and progressive activity and to be effective must be reviewed and updated regularly, at intervals not greater than one year, in the light of progress achieved and changing circumstances. The plan should be extended at each reviewing so as to maintain a permanent five year lead. Project evaluation and review techniques (P.E.R.T.) and critical path methods (C.P.M.) will be of assistance in maintaining the Five Year Plan. The Consultant should be brought in at this initial stage to advise on priorities for development, to conduct market surveys, surveys of sources of material, of transport, handling facilities and manufacturing processes and to make reports based on these surveys.

Let us now study the priorities which would apply to a government development plan. These would commence with the integration and expansion of agriculture to earn or increase export income. From the greater viability of the expanded agricultural activity will flow capital for the support industries, such as fertiliser works, factories for the manufacture of irrigation equipment, cement works, industries directed at the conversion of timber to building materials, and the production of road making materials. The next stage of development is the provision and expansion of the infrastructure, such as transportation facilities, bond stores and material handling facilities. This planned development can apply in a similar manner to a developing industry. Consultant services should be based on expert knowledge and wide

experience in all stages of planning and development. In many instances they can work in association with government personnel or members of the industrial organisation by whom they are commissioned. The nation making use of overseas consultants should require some form of association with local people so that some part of the skills introduced into the country will remain. This is not easy to achieve if the gap is great between the level of knowledge in local personnel and organisation, and the special knowledge of the overseas Consultant. However, unless a well organised system of acquiring this knowledge is instituted, the nation will always be dependent on overseas consultants for its development.

3. SEQUENCE OF EVENTS LEADING TO CONSULTANTS RECOMMENDATIONS

In approaching the subject of implementation of a consultants recommendations it is assumed that the following decisions have been made:

- (a) The employer, or client as I will refer to him, has determined his need for specialist assistance outside his own organisation.
- (b) He has defined the problem or task in general terms, with or without the aid of a consultant.
- (c) He has reviewed the various courses open to him to obtain specialist assistance and has selected a consultant appropriate to the task.
- (d) He has reached agreement with the consultant on the extent of the commission, the conditions governing the engagement and the fees payable to the consultant for his services.
- (e) The consultant has studied the problem and has made his recommendations for its solution. This may be in the form of a report or the signing of a contract.

IMPLEMENTATION OF THE CONSULTANTS PROPOSALS IN RELATION TO A SURVEY OR STUDY

Survey and reports can fall into the following categories.

In the Government field of development:

- (a) Report and recommendation on a 5 year development plan.
- (b) Feasibility studies of the various development projects in the 5 year

plan including comparisons on a cost benefit basis and a recommendation on priorities.

- (c) Reports on potential national resources such as minerals, timber, fisheries, hydro-electric power, agriculture including irrigation.
- (d) Traffic study leading to a recommendation on major road systems.
- (e) Study of potential sources of water supply in relation to urban development.
- (f) Study of the potential for developing port and harbour facilities.
- (g) Report on plan for urban development or redevelopment.
- (h) Feasibility study of alternative sources of electric power.

In the private industrial field of development:

- (a) Report and recommendation on 5 year development plan.
- (b) Feasibility studies of the various development projects in the 5 year plan including comparisons on a cost benefit basis.
- (c) Report on existing equipment in relation to an industrial process.
- (d) Report on a complete existing manufacturing installation including buildings, material handling facilities, wharves, roads and services.

Let us now examine the obstructions and resistance that can impede the implementation of the recommendations contained in the Consultants report. The first obstruction can come from the Client himself.

If he is not convinced by the report he will put it aside and ignore its recommendation. If this happens there is little that can be done but start again and review the steps that were taken prior to the Consultants engagement. The failure of the commission could be due to one of the following:

- (a) The client has not been convinced of the need for the study.
- (b) The methods adopted to select the Consultant have not been such that he commences his commission with the full confidence of his client. Without this confidence the exercise is doomed to failure.

(c) The Client has not established a satisfactory liaison by appointing a senior member of his organisation to work with the consultant to provide client decisions promptly, and to keep the client informed in general outline, of the progress of the project.

(d) The right consultant has not been selected for the work.

If on the other hand the Client is convinced by the recommendations of the report, he will then take steps to implement it. This will often require senior members of his organisation to change their approach to their routine activities and here is a major source of resistance. The advice of a person from outside, claiming to be an expert in the operation of an industrial process, will almost always be resisted by senior employees, unless certain steps are taken to win their support and co-operation. The client must introduce the consultant at the commencement of his work, explaining the reasons for his engagement, and this should be done in as much detail and to as many employees as will be affected by the recommendations of the consultant. It will also help to secure the co-operation of these people, if as many as is practicable are involved in the study, by providing data, offering opinions, and generally being made to feel partly responsible for the final report. There is much wisdom in a book written over thirty years ago by Dale Carnegie called "How to Win Friends and Influence People" in which he discusses many ways to gain the support of people for an idea. Whilst the book is written in an easy conversational style there is much of value in it in the handling of a potentially difficult or even explosive human relations situation.

IMPLEMENTATION OF A CONSULTANTS RECOMMENDATIONS
IN RELATION TO CONSTRUCTION OF ENGINEERING WORKS

Engineering or Building Works, may include Airports, Highways, Railways, Water Supply, Sewage Disposal, Tunnels, Bridges, Ports and Harbour Works, Irrigation, Flood Controls, Stormwater Drainage, Power Stations, Power Transmission, Electrical Installations, Telecommunications, Gas and Oil Installations, Pipelines, Factories, Land Reclamation, Commercial Industrial and Educational Buildings,

The contract documents may be prepared by one firm of consultants or by a polyprofessional consortium including specialists from research organisations, universities or governments, depending on the variety and number of skills required for the project. In selecting the Consultant or consortium it will be important to assess the abilities of the personnel who will make up the project team, for the success of a project will depend on individuals as well as the backing of the organisation behind them. It is normal in many parts of the world for the Consultant to be completely independent of any contracting organisation and the contract for the construction is let after calling tenders from a selected group of contractors. It is also common practice for the Engineer and the Contractor to be part of the one organisation and a turnkey contract or package deal is arranged. This differs from the independent Consultant and Contractor arrangement in that it does not provide the Client with an agent to watch his interest and the competition of the tender system is greatly reduced. It can provide for an earlier start in construction, which often is associated with additional cost. In this paper I propose only to discuss the relationship between Client Consultant and independent Contractor.

It is important that in preparing the Contract Documents the Consultant frame them around the known skills of the labour available. It may be necessary to bring into a country a group of skilled tradesmen to form the nucleus of a work force for the project. The same principle should apply here as with the Consultant, the local labour force should be so integrated with the imported tradesmen that some of their skill is left in the country after the project is completed.

If we now assume that a contract has been signed by the Contractor and construction is to commence, the first steps the Consultant takes should be aimed at establishing a working relationship with the Contractor, based on mutual confidence and respect. The Consultant should spend as much time as is necessary to go through the documents explaining the reasons for each part of the design, the anticipated methods of construction and the various controls that have applied to the design. This briefing session with the Contractor should be as detailed as is necessary to involve the Contractor in the design concepts, to obtain his support for the design and demonstrate to him that full consideration has been given by the Consultant to the problems of construction. If this session is successful the Contractor, throughout the job, will freely discuss his construction methods with the Consultant and even ask his advice. A good relationship between Consultant and Contractor will be maintained by instructions being clear concise and firm. Most contractors will willingly accept instructions in this form provided a relationship of mutual respect has already been established. The aim should be for the Consultant and Contractor to approach the project as a team whose main interest is to see that the Client gets what he pays for with the greatest efficiency. It should not be difficult to establish in the project a challenge to the combined skills of the Consultant and the Contractor.

However, it may be found that the Contractor will resist carrying out the instructions of the Consultant if he considers them to be impractical. These circumstances can develop if the original Consultant Contractor briefing has not been adequate and there is a lack of understanding of the Consultants proposals. They may also be due to the Consultant setting up a communications barrier between himself and the Contractor, or to a feeling of inferiority on the part of the Contractor when dealing with a technically qualified person. As in the implementation of a report, obstruction to the implementation of instructions contained in contract drawings and specifications is often due to a break down in communications. If the relationship breaks down and hostility to the Consultant develops, this could take the form of persistent criticism of the design and the site instructions. There almost certainly will be, in these circumstances, proposals for alternatives from the Contractor. The knowledge of the Contractor on the subject should first be checked and then the Consultant should patiently examine the proposal in detail, and explain to the Contractor the reasons for his original instruction. Any attempt to discard suggestions from the Contractor without proper consideration will lead to a further deterioration in the Consultant Contractor relationship. Any inertia on the part of the Contractor or any hostility to the Consultants instructions must stem from omitting to establish a proper relationship before the job is commenced. When this situation occurs it can be due to a relationship developing where Consultant and Contractor regard each other with suspicion and in opposing camps.

To assist the establishment of a relationship between Consultant and Contractor which will be conducive to a successful project the Client should clearly demonstrate to the Contractor his confidence in the Consultant. The Client should have allocated a senior member of his

own organisation, who enjoys his support and confidence, as a liaison with the Consultant during the preparation of documents and later with the Consultant and Contractor during construction.

CONTROL OF A CONSTRUCTION PROJECT

Some of the essentials of proper control of a project to ensure its success have already been mentioned. We must assume that a mutual confidence exists between Client Consultant and Contractor and that the Client has appointed a liaison officer from his own organisation.

After the initial briefing of the Contractor has taken place a regular programme of site meetings is set up. Those present will be the Contractor, the Consultant, and such members of their organisations as may be required, together with the Client's representative. The Contractor will be asked to provide either a bar chart or a network analysis for the total period of the contract which he will update before each site meeting. At these meetings progress will be reviewed, major difficulties encountered discussed and variations to the contract reviewed. Procedures for claiming for variations will be established. Lines of communication will be determined and a system of written reports on the proceedings at site meetings established. Meetings on the site of the construction will not be restricted to regular site meetings but will occur as frequently as is necessary to ensure that the work is carried out in accordance with the contract documents as modified by circumstances from time to time and that the interests of the Client are assured at all times.

Two examples of incorrect Client Consultant relationships may be of interest. The first project was the construction of a Swimming Centre for a Local Government Authority. This was built on a difficult site and included

three pools, change rooms, equipment rooms and staff rooms. Whilst the Client had confidence in his Consulting team, his experience as a constructing authority made it inevitable that he would become more involved than most clients in the administration of the contract. The tender list was prepared, not by the Consultant, but by the Client and the decision on the Contractor did not entirely meet the approval of the Consultant. The Client provided a resident Clerk of Works from his own staff and the contract commenced. The Contractor soon became aware that he could rely on a sympathetic hearing from the Client on any contractual dispute with the Consultant and his relationship with the Consultant deteriorated. Eventually a dispute developed which could only be resolved by arbitration. This provides an illustration of the importance of mutual respect and confidence between all parties if the project is to be a success.

The second example is of a housing development in the design stage where the Consulting team has been engaged to advise on the scheme in sufficient detail to enable a cost study and return on capital outlay, to be established. The competence of the Consulting team is more than equal to the task and the team produced the necessary details. The Client's project officer, being an engineer and having a knowledge of construction materials, proposed the use of an alternative form of structure. Against advice of the Consultant as to the suitability and economy of the alternative, he sought an alternative design from a Consultant specialising in this other form of construction. The programme for the project was delayed several weeks while the alternative was developed. The result has been that the Consulting team's advice has been confirmed but in the meantime some damage has been done to the Client-Consultant relationship and the project will proceed with less enthusiasm on the part of the Consulting team than it would otherwise have had.

In both of these examples, the Client or his representative demonstrated a lack of complete confidence in his advisors and in so doing, jeopardised the success of the project. The housing project will still be a success but the original enthusiasm of all members of the Consulting team has noticeably waned.

One other matter should be discussed before passing on to the last part of this paper and that is the need for a satisfactory fee arrangement. Most established fee scales provide the Consultant with reasonable reward for doing his work properly. It is not in the Clients interests to seek to have this fee reduced. He will almost certainly find that a Consultant who will provide a reduced service. In either case the amount saved on the fee will be spent several times over in less economic construction, or in maintaining an unsatisfactory project. The relationship between Client and Consultant is damaged by such an approach and this will be reflected throughout the project.

EVALUATION OF THE PROJECT AND THE CONSULTANT

Whether the Client intends to use a Consultant's services again in the near future or not, he should review the success of the commission. The relationship of the Client and Consultant could extend over many months, or even years, and is a test of personalities and human relations as well as technical efficiency.

The review of a survey or feasibility study engagement should include the following:

- (a) Did the Consultant take sufficient account of existing conditions and data in preparing his report, or did he tend to apply a stock solution to the problem disregarding any influence peculiar to the particular circumstances.

- (b) Was the Client kept informed of progress of the study. Were senior members of the Client staff involved to the degree necessary to obtain their support for the Consultants proposals.
- (c) Was the report produced on time or was the Client financially or otherwise embarrassed by the report being late.
- (d) Did the recommendations of the report take full account of the limitations imposed by the standard of local skills and materials and was the optimum use made of such skills and materials.
- (e) Was the Consultant's report prepared in a manner which avoided misunderstanding and permitted its recommendations to be implemented without difficulty.
- (f) Did the Client receive the personal services of the Consultant to the degree necessary for his control of the commission, or was the Client left entirely in the hands of one of the Consultants employees.
- (g) Was the Consultant able to enlist the full support of the Clients employees, both during the preparation and after the submission of the report.
- (h) What attempts did the Consultant make to impart some of his special skills needed for the survey and study, to the staff of the Client, and with what success.
- (i) Were the results of implementation of the Consultants recommendations as great as the Client had required, or had been led to expect by the Consultant.

A review of a commission to establish new facilities, or construct new civil engineering or building works should include:

- (a) Did the Consultant take full account of existing conditions and obtain all necessary surveys affecting the design of the project.

- (b) Did the design of the project make maximum economic use of existing materials and skills.
- (c) Did the project serve the function required with surplus capacity, or just barely.
- (d) Did the design of the project produce expensive maintenance problems, and was the Clients interest in maintenance versus initial cost fully explored and taken into account in the design.
- (e) Where Clients employees would be involved in operating the new facility, were they kept informed of the design approach and their support for it secured.
- (f) Did the project go to tender on time and was the contract administered efficiently, so that no delays in construction could be attributed to lack of performance by the Consultant.
- (g) Was the project constructed within the estimate and the Clients budget or were additional costs involved due to the Consultants errors or omissions.
- (h) Allowing for the fact that no human being is infallible did the Consultant provide for the Clients requirements in an efficient and satisfactory manner.

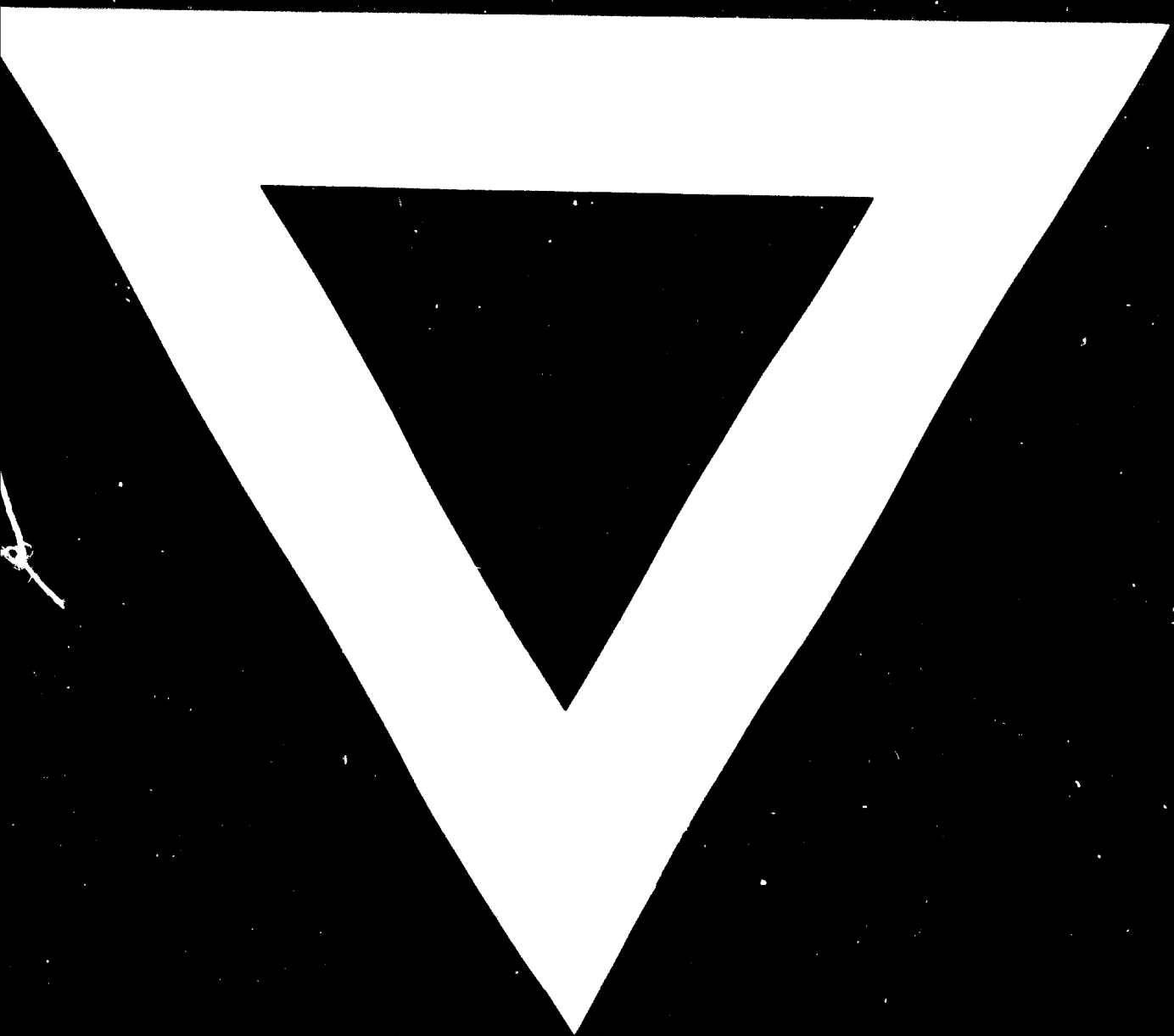
To conclude the review further examination of the Consultant as a person should be made and the Client should ask himself the following:

- (a) Did the Consultant demonstrate his personal technical ability and his ability to direct and lead his own staff to provide the Client with the best possible service.
- (b) Was the Consultant's personality such that he was able to work in harmony with both Client and Contractor, or did it promote unnecessary tension and disc ord.

(c) Was the Consultant sufficiently persuasive and plausible in his recommendations to be able to enlist full support for them.

The ultimate test of the success of the experience is in the answer to the question "Would the Client re-engage the Consultant for his next project".





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