**ETHICAL AUDIT**

**INTRODUCTION**

In dealing with the responsibilities and meeting the ethical concerns at each stage in a project, the professional should be able to handle the conflicts that may arise within and between the stages, and between the interests of the several parties involved. Careful proactive planning will ensure that the consideration of potential conflicts is part of the development process, taking place, as far as possible, before the conflicts arise. It is important for the engineer to be aware of the values held by all the different parties in any situation and negotiate a general understanding of their several responsibilities and interests. Ethics, considered as the science of human relationships, is an examination of the quality of life of societies and of the impact of proposed actions upon this quality. Due consideration enables sound, just exchanges to take place. Unethical behaviour leads to conflicts, to the misuse of material and human resources to poor and careless workmanship and management, and to a lower quality of life for all affected. Ethical behaviour based on the developed intrinsic virtues (integrity, independence, impartiality, responsibility, competence and discretion), and guided by the extrinsic directions of professional organizations, leads to the exercise of competence, efficiency and collaboration. These result in good workmanship and management, and to a higher quality of life for both those concerned with the execution of a project and those affected by it. To enable a systematic approach to be adopted for the resolution of questions which are essentially unquantifiable, it is useful to consider the normal stages of project realization and to review them against the professional rules of practice. Effectively, this involves carrying out an ethical audit of the project so that essential decisions can be made which include, in addition to the normal technical, economic and legal components, the ethical dimensions.

**ASPECTS OF PROJECT REALIZATION**

There are five aspects of project realization. They are:

1. The interests and roles of the decision makers
2. The brief
3. The context of realization-political, social, economic and physical
4. The design
5. The implementation.

Each of these aspects presents a set of decisions which have ethical implications. We will identify the areas where conflicts may arise, and where consensus decisions may have to be negotiated. The best way to resolve conflicts is to avoid them in the first place. Good behaviour helps. Conflicts are symptoms of differences i.e., of difference in understanding about intentions, of differing value systems, of differing cultures, from confusions between the aims of an action and the objects of the actors. All actions in which conflicts are generated arise from our relationships within communities of people, societies, and collaborative ventures. The structure and traditions of particular societies affect our moral judgments. The resolution of conflicts results in agreement. Agreement requires an acceptance of a common aim, rather than differing objectives. At each stage in the hierarchy of decisions, an increasingly large number of people in an ever-widening context are affected. It is important to appreciate the ranges of influence of decisions and, therefore, the range of understanding and objectivity required if decisions are to be 'good'. This appreciation should be present at the earliest possible stage in the development of a project. A 'good' decision is one that improves the quality of the output and of the lives of those concerned with its execution and its result. It general, the areas of concern in civil engineering projects are those of society, humanity and the environment. Irresponsible performance can have adverse effects on the quality of life of many people not directly concerned with the project, and on the environment, certainly for many decades, if not for centuries to come. Conflicts at this level may become evident during public consultation or at formal planning inquiries, and should certainly form part of any audit.

**ETHICAL AUDIT PROCEDURE**

There are clear differences between the contractual obligations entered into by the several parties to a project, and the ethical duties of those parties. The project brief should set out the aims and constraints of the project, and the duties and obligations of the several parties, acknowledging the rewards and methods of payment for the services provided, and the quality of services and products expected. The temporary relationships, formal and informal, between the contracting parties during the lifetime of a particular project require careful consideration. The inclusion of an ethical section in every project brief will help reduce the conflicts that inevitably arise under the pressure of project execution. Such ethical reviews should be made a formal part of project procedures with time set aside to consider relationships, or any changes is the work Proceeds. It is best that this review he independent of project team meetings, and not just included as a late item on an already crowded agenda. The time allocated for such reviews will he found to pay for itself many times over. It is certainly not just a public relations item. With a clear statement of values, each of the parties can carry out his individual duties with responsibility.

**THE DECISION MAKERS**

The avoidance of disputes and conflicts requires careful and willing, collaboration between the parties involved, at the outset of any collaborative effort. There must be a clear understanding of the aim of the project-what need is being met, and what are the surrounding circumstances. Physical, financial and temporal restraints need to be clearly defined, and the nature of the contribution required from each member of the team, established and recorded as understood. It should he acknowledged that the individual parties may have differing objectives, and these should be clearly and openly defined. Clients of the construction industry are widely varied in size, function and organizational type. They may he individuals, corporate or public bodies. Each will have a distinct philosophy governing its objectives and the way it operates. Their priorities are likely to be radically different from those of their professional advisors. Clients may be experienced in the construction process or they may be inexperienced, having no previous knowledge of construction. A further distinction may also be made between clients whose main business involves construction projects-developers, industrial/manufacturing organizations, public sector agencies-and those whose involvement with construction is only an occasional event (extensions to their business properties). The client will require a construction which is fit for purpose, and one that is delivered in time and within an agreed budget. The consultant may wish to have a project which demonstrates his skill and can be provided within his fees. The contractor will prefer a project in which

 • Early agreement is required on broad parameters for the commercial viability of the project;

• Flexible approaches are required to incorporating client changes during the design stage;

• 'open-book' approach to negotiations for prices of construction work is required, particularly for estimates of the cost of variations;

• Agreement on detailed specifications is required for projects before the start of construction works;

• Consideration must be given to the matter of standardization, to ease buildability:

• The use of independent professional project management, using experienced professionals, should he considered;

**VARIETY OF INTERESTS**

The traditionally accepted construction philosophy has inevitably led to a redefinition of the duties, roles and responsibilities of the engineer. The roles may be less clearly defined and may generate some internal conflicts. However, conflicts arise under the traditional and the clearly defined roles of independent organization of specialists--clients, consultants, suppliers, contractors, financiers, et al. In considering these diverse interests, it is helpful to take into account those factors that assist the reaching, of common aims and standards the integrating factors, arid those conflicting factors that arise from differences, At the outset of any project, the client begins to assemble, probably with the assistance of his prime consultant, the team of advisors, suppliers and contractors with the necessary skills to achieve his objectives. The following factors relate to the development of such a team:

• It is unlikely that any one advisor will have the skills and knowledge necessary to develop a project. Briefing becomes a team effort as professionals with specific expertise or experience are introduced to the project. Many of these will form part of a permanent project team; others be retained only as long as their inputs are required.

• The project and design teams may comprise many specialist disciplines, civil, structural, mechanical and electrical engineers, architects, land surveyors, economists, et al. depending on the scope and magnitude of the project,

• The number of parties involved in a project may well reach a level at which a project coordinator or project manager will he formally appointed. This is frequently the case.

• As the aims and means of achieving them in a project are established and developed, the scheme is subject to appraisal in terms of its viability. Sketch designs will be prepared by the design team and a strategic program prepared, reflecting the clients' aims, completion date, financial targets, and quality standards.

• Each member of the team, including the client, will be faced with a variety of problems and each will offer solutions based on their background, experience and professional training. The project manager will focus the analyses of these problems in the context or the overall project goals, presenting the alternatives to the client for approval.

• These discussions will involve or he influenced by the views and concerns of external organizations and interested parties, many of whom may be accepted by the project during its planning, construction or operational stages, and in the long or short-term. Their concerns may include social considerations such as employment, health and safety, education, cultural or recreational activities, security, displacement and relocation. They may also be interested in the environmental or other aspects of the project.

In all these situations, the engineer who may be playing any one of several roles—client or consultant, public agent, or contractor—must assess his own duties and responsibilities relative to those roles. The ethical audit will identify the roles of the various parties and attempt to define their responsibilities within the total procurement process.

**FORMULATION OF THE BRIEF**

Projects of all sizes involve the appraisal and consideration of a multitude of constraints—technical, legal, financial, environmental, organizational and ethical. The client's brief will ultimately define the priorities and objectives of the project. Without a comprehensive brief, no project can be successful. The brief is usually prepared in an interactive dialogue between the client and his advisor, with the advisor obtaining and clarifying information from the client. Part of this information may be obvious and easy to access. Much may be unclear and the client may not appreciate its relevance or the advisor in the context of the project. The preparation of the brief requires careful consideration not only to meet the needs appropriately but to avoid ethical conflicts arising from partial views or misunderstandings. At the inception stage of any project the client perceives a need. This will be a response to the situation in which his organization operates. Generally, the need will be to combine many forces and stimuli including the need to survive, to maintain position in relation to competitors, and economic or sociological forces. These needs trigger the start of a construction project—although construction professionals may not be involved initially. At this time the client probably has little information on what he requires from the project, other than a broad estimate of how much money is available for the works and an approximate idea of the time at which he requires the project to be completed and operating. For many clients approaching a construction project, there will be feelings of vulnerability based on

• working outside their own field of expertise or knowledge;

• placing themselves in the hands of professionals who may not be using working methods and technologies that the client may not understand or have trouble in controlling;

• Uncertainty as to the feasibility or program of the project; and

• Knowledge that they may be embarking on a complex process with high risks.

The client will require 'value for money measured in terms of time, quality and price. The relative importance of these three parameters will vary from client to client, and each will be willing to make 'tradeoffs’ between three in order to achieve his own particular organization's goals. The client will require the assistance of professional advisors to help him appraise the feasibility and viability of his plans and ultimately to assist hint to the project, should he decide to go ahead. He will aim to pass some of the risks involved in the project onto his advisors and the constructor. He will expect the advisors to provide sound independent advice and information in a form that he can understand and which can be used to help him to make decisions. He also expects his advisors to understand his needs, context and operational aims and structure so that their advice will be relevant. The focus of these needs may be internal to his organization and may conflict with the - broader outward looking views of his advisors.

**THE ENVIRONMENT**

Individuals living together in societies improve the quality of their lives by their corporate efforts and their shared skills and talents. Such efforts frequently lead to misery and distress is evident: but this may be more often the result of ignorance and greed than a reflection of the nature of societies in general. Engineering projects inevitably impact not only on the physical, but also on the economic and social 'environments' that contain them. 'Environments' include all the factors outside the project that may affect or he affected by the project. These impacts may be beneficial or they may be harmful. Modem engineers must now also take into account finite resources and the complex interaction of the project and its environment—social and physical.

Engineers are therefore responsible not only for the effective use, management and conservation of the resources placed at their disposal within the project, but also for the analysis of the project within a complex and changing external environment. Well drafted contract documents contribute greatly to clarity and the anticipation of possible areas of difficulty, enabling possible conflicts to be resolved before they arise. The types of issue that can cause conflict, for example, include a need to change a material supplier, the need for extended working hours, and the introduction of unplanned construction techniques—blasting, open cut substitution for tunneling, etc. Site hygiene and safety are the responsibility of the site management and are part of the overall professional responsibility for all engineers involved in the project. Labour relationships require consideration and fairness. Adequate provision needs to be made for the training of all operatives and the management staff, in that regard. It can be helpful to hold initial, and perhaps regular meetings at which the designers or owners can explain to the site operatives why certain decisions have been made, the sequence of operations, the importance of quality control and perhaps to encourage feedback from 'grass-roots' on suggestions for improvements in working procedures.

**THE AUDIT STATEMENT**

It is of value to set down the details of the project, not only at the outset of development, but as they are revealed or changed during the lifetime of the work. The continuous appraisal of the current state of the work is most important. The past is only of relevance if it informs us of present situations or suggests possible outcomes for alternative lines of developments. The clearly established aims of the project will suggest lines of action proceeding from the known situation to the desired ends. A special meeting considering only ethical aspects of the project can be of great help. Failing this, adequate time must be set aside for their consideration during other meetings. Continuous attention to the details can reduce the time required to resolve problems to a minimum, ensuring smoother running of the contract. Special aspects of particular projects, and standard agenda can be developed for such review meetings, with particular individuals identified to report on differing sections of the work.

**THE AUDIT REVIEWS**

There are two types of review meeting--the construction team meeting, and the consultative meeting with local interested parties.

The report format for the ethical audit should be in two parts, namely

• A review of the present situation

• The ethical implications of future activities.

The object of the audit or ethical brief is to identify possible points of future conflicts of interest and to eliminate them wherever possible. The records and recommendations can be divided usefully into five stages:

**1. Schedules of all parties concerned—**to include names. Addresses, etc... And management structures of each organization with deputies named for each key player. The roles, responsibilities and reporting paths of all the main 'actors' should be defined — clients, managers, consultants, contractors, suppliers. Design/build/supply organizations, statutory officers, etc. This should include details of subcontractors with records of their contractual relationships with main contractors.

**2. The agreed briefs —** summaries of briefs toe all sections of the project, including program limitations. Should be included in the ethical files. Special note must be made of any performance specifications and of any special constraints (e.g. on suppliers, country of origin, materials, safety standards. security, and confidentiality). Quality management procedures need to be set out with definitions of the responsibilities and authorities of those concerned with the monitoring of quality.

**3. The context—**in addition to a full description of the site and of those aspects of the neighbouring communities likely to be affected by the work, records should include full details of any environmental impact assessment that has been carried out, with the recommendations carefully noted. Are there any special requirements concerning working conditions, health and safety, security, pollution, communications, traffic management, restrictions on working hours, etc.?

Statutory and legal requirements should be noted with definitions of any national or international standards to be observed. In some cases when operating between, or in, different nation-states, a special section identifying any unusual aspects of the law should be noted. Relationships with approving bodies (planners, by-laws, etc.) need to be defined, and where no local regulations exist, agreement needs to be reached and recorded on standards of working practices to be observed.

**4. The design —** any special requirements for reversibility, sustainability, energy conservation, etc., need to be noted. Variations in design during construction are not unknown, and the original criteria need to be available for reference, e.g. capital vs. maintenance criteria and whole-life costing. The contract documents and detailed specifications and instructions issued should clearly define and instruct contractors and suppliers on their contractual obligations. Careful attention should be given to the interface between the parts of the project, particularly if work on these is to be undertaken by different parties, perhaps separated by some interval of time.

**5. Implementation —** the items covering relationships with local communities and the construction aspects of the project should be noted and reviewed as a matter of routine at the regular meetings on ethical, or working practices. Trade union relationships should be noted, with reports on security and safety. Problems with the delivery and supply of materials and components, or of dust and noise light pollution, should be resolved. The identification and definition of possible sources of differences can reduce conflicts to a minimum and ensure that trust between all parties, with respect for their particular interests and contributions, underpins all the work, and results in a sound project, delivered to program and budget, to the satisfaction of all concerned.