3.5 Managing the Project Quality and Risks

Project quality control, quality assurance, and management of risks are all essential components of good project management.

**Quality assurance** defines the level of quality required for project implementation, and the process to be followed to achieve it. A good quality assurance plan will also define the method to measure compliance with the project's quality requirements. Often, consultants' quality assurance systems provide for independent internal peer reviews to ensure any mistakes or errors are found and remedied before issuing the designs or drawings to third parties. Mistakes are bound to occur occasionally; a good quality assurance system will filter out mistakes to ensure an accurate output.

**Quality control** is the process of applying the quality assurance system through periodic checks, to ensure that the engineering and design process meets the quality levels agreed to at the onset of the project. The quality control plan will normally identify the personnel assigned to carry out the peer reviews and schedule the times and intervals for such checks.

Leading consultancies also run "total quality management" (TQM) systems that integrate the quality assurance and quality control procedures with a quality improvement program, designed to continuously improve the quality of the consultants’ projects. This concept is essentially a cycle of learning from mistakes by systematically analyzing the root causes of any problems and devising systematic solutions to prevent the problems from reoccurring.

**Risk management** is the process of identifying, assessing, and mitigating all known risks associated with the implementation of a project. Project risks involve the following main areas:

- contractual liabilities;
- technical components and standards;
- safety of personnel, plant, and equipment; and
- financial incentives or penalties.

Identified risks must be managed so that

- the likelihood of risks becoming problems is anticipated,
- measures are in place to minimize the impacts of problems that occur.

Contingency plans or fallback actions should be considered in advance so that, if a problem occurs during project implementation, remedial action can be taken without delay, to minimize impacts.