

RISK ASSESSMENT:

Introduction:

Risk assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk for each hazard. The hazards cannot be completely eliminated and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way. Risk assessments will help to prioritize risks and provide information on the probability of harm arising and severity of harm by understanding the hazard, combine assessments of probability and severity to produce an assessment of risk and it is used in the assessment of risk as an aid to decision making.

In recent years the concept has begun to achieve more acceptances within the ranks of water resources management. Application of risk analysis to dams raises a unique set of problems, because each dam is a unique system within its own distinctive environment.

In the context of the present project, the risks involved during the construction of the dam have been focussed here. Further the hazard may natural hazard or manmade hazard.

Environmental Risk Management:

Most water resources projects, by and large designed with the environmental sustainability are not altogether free from Risks and hazards which may appear during the entire implementation period. Due importance is therefore attached to the review of environmental design considerations, identification of areas involving risks and hazards along with appropriate mitigative measures in the management plan. This approach proceeds from the conviction that the development objectives cannot be materialized fully unless disaster mitigation is built in to the development process.

Risk Management:

Risk as defined is the probability of harm or likelihood of harmful occurrence being released and its severity. An environmental hazard entails a set of circumstances which lead to the direct or indirect degradation of the environment and becomes a cause of damage to the life of people, property or environment.

A. Assessment - Approach:

- To identify the potentiality hazardous areas so that necessary safety measures can be adopted to minimize the probability of accidental events & failure of design.
- To identify the potential areas of environmental disasters which can be prevented by proper design of installations and controlled operation.

B. Management Procedure:

- Set up a committee of experts to probe the cause of such events, estimate the probable losses and suggest remedial measures for implementation so that in future such events or similar events do not reappear.

7.3.3 Review of the Environmental Design Considerations:

Sl.	Design objectives	Reviews and accomplishments
1.	<ul style="list-style-type: none"> • Should confirm to aesthetically satisfying structures as well as the landscape. • Should cause minimal disturbance to the ecology of the area. 	<ul style="list-style-type: none"> • The proposed Dam will be located across river Lanth with releasing arrangements through 7 gates each of size 12 m X 6.5 m. The physiography of the area comprises hills, valleys and plains. • The construction of dam and spill way therefore will change the aesthetics. However, new landscape will develop which shall be aesthetically satisfying. • As the area will be submerged for construction of dam the ecology will be disturbed.
2	<p>Structural design considerations</p> <ul style="list-style-type: none"> • Design of the structures should be safe from stability considerations. • Utilizable materials in the structure should not disturb the ecology. • Prevent excessive soil erosion during construction phase which may transport the sediment load to the downstream. • During construction of dam, the spoil piles should be properly shaped. 	<ul style="list-style-type: none"> • The structural design will be undertaken in the state Designs organization with due consideration of codes and standard procedure. • Quarry location has been identified far away from the project site. • The dam will be a concrete and masonry structure to be founded in solid rock having negligible erosion. • A part of the excavated earth materials will be re-used in the canal bank roads etc, the rest will be used for filling of borrow areas and other low lying areas.
3.	<p>Landscape Consideration</p> <ul style="list-style-type: none"> • Damages to the Vegetative cover due to construction should be minimum. • Burrow pits/ Borrow areas should be shaped and revegetated. • Quarried operations should be 	<ul style="list-style-type: none"> • The existing access route will be renovated; with plantation on the road side. • Borrow pits shall be revegetated. • Quarries are located at faraway places. Quarry operation by agencies shall be regulated as per guidelines.

	minimum conforming to requirement.	
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Risks Assessment during Construction Period:

The construction of the spillway shall primarily comprise of the following activities:

- Leveling and excavation of the spillway area, which will involve use of earth moving equipment like dozers, scrappers, excavators, diggers etc.
- Construction of dam which will involve masonry and concrete work. For this purpose Heavy duty trucks shall be used for transport of building material like cement, sand, stone chips, rods etc. Cranes may be used for haulage of material.

Risks and Hazards involved during the construction process can be of significant magnitude if due care is not taken to be minimized through proper mitigation measures.

These are broadly discussed below in **Table No.1.**

**Table No.1: Potential Environmental Hazards and Mitigation Measures
(During Construction Period)**

Sl. No	Activities	Impact	Hazard Potential	Remarks	Proposed Mitigation measures
1.	Excavation by Drilling and Blasting	Noise-Dust & Accident	Moderate Pollution	Occurs for temporary period	<ul style="list-style-type: none"> • Blasting operation as per prevailing explosive guidelines. • Controlled blasting should be done to avoid fling objects • Ensure effective warning system.
2.	Disposal of solid wastes, construction debris	<ul style="list-style-type: none"> - Dust pollution - Land degradation 	Moderate	For temporary period	<ul style="list-style-type: none"> • Carriage/ Transportation of mucks by covered transport vehicles. • Sprinkling of water over the dumping yard and Haul roads.
3.	Water Pockets in burrow pits	Water/Land pollution	Breeding of disease vectors	For a temporary period	<ul style="list-style-type: none"> • Small burrow pits to be avoided • Bigger pits to be fairly levelled connected to drains and slopes turfed.
4.	Migration of labour force	Occupational Health	Moderate	For a temporary	<ul style="list-style-type: none"> • Labour camps will be properly maintained.

		problem		period	<ul style="list-style-type: none"> • Ensure health delivery to labourers free of cost.
5.	Pollution of flow water source	Unsuitable for domestic use	Moderate	For Temporary period	<ul style="list-style-type: none"> • Drinking water will be supplied to workers at the construction site as well as in labour camps.
6.	Other Manmade disaster/Risks	Accident	Occasional	Rare occurrences	<ul style="list-style-type: none"> • Fire extinguishers will be kept ready for electric fires- Forest fires etc. • Safety measures for vehicular traffic.