

SJVN LIMITED



Risk Management Policy

VISION

TO BE BEST-IN-CLASS INDIAN POWER COMPANY GLOBALLY ADMIRER
FOR DEVELOPING AFFORDABLE CLEAN POWER AND SUSTAINABLE
VALUE TO ALL STAKEHOLDERS

MISSION

TO DRIVE SOCIO-ECONOMIC GROWTH AND OPTIMIZE SHAREHOLDERS
AND STAKEHOLDERS INTEREST BY :

- DEVELOPING AND OPERATING PROJECTS IN COST EFFECTIVE AND SOCIO-ENVIRONMENT FRIENDLY MANNER
- NURTURING HUMAN RESOURCES TALENT WITH CARE
- ADOPTING INNOVATIVE PRACTICES FOR TECHNOLOGICAL EXCELLENCE
- FOCUSING ON CONTINUOUS GROWTH AND DIVERSIFICATION



**Chairman & Managing Director,
SJVN Limited**

Foreword

It gives me a great pleasure to release “Risk Management Policy” of SJVN Limited. SJVN travelled a long way in the last 25 years that commenced in the year 1988, of course fraught with many hurdles, obstacles and problems. Each step of the journey was challenging but was also inspiring and rewarding.

Starting the journey from one project in operation in Himachal Pradesh, our ambitions took us beyond geographical boundaries of the State and then of the Nation. Across the vast tract of the Himalayas, SJVN is working on exploring and executing hydropower projects in Uttarakhand and Arunachal Pradesh besides neighboring countries of Nepal and Bhutan. The expansion and diversification from Hydro Power to Transmission, Renewable Energy and now to Thermal Power have brought laurels and added value to the organization.

However, the achievements do carry along with them enhanced degree of risks relative to earlier days, due to increasing pace of change in the operating environment. Hydro Power in particular faces significant sector specific and location specific risks like Social, Environment, Geo-Technical conditions etc.

Looking into the varying factors and associated risks, SJVN Risk Management Policy brought out by the Risk Management Team of SJVN headed by ED (Elect. Design) under the guidance of Director (Finance) within the shortest possible time is a significant achievement worth mentioning.

The policy has classified the kind of risks faced by the organization under Business Environment Risks, Strategic Business Risks and Operational Risks. It further suggests mitigation measures necessary to ensure growth of the organization in geometric progression and contribution towards sustainable development of SJVN and the National power scenario.

I am confident that pro-active action emerging from this Policy Document will be followed in letter and spirit and a decisive and fearless working environment will be created across the organization.

With all best wishes!

(R P Singh)
Chairman & Managing Director



**Director (Finance),
SJVN Limited**

Foreword

In any business organization, public or private, adequate protections and protective measures ensuring safety are taken care of during design, erection, commissioning, operation and maintenance stages. Despite all precautions possibilities of emergencies and accidents cannot be totally ruled out. Even though such an occurrence may be rare and having remote possibility. Accident(s) do have adverse effects on plant, property and human beings.

As a listed company since 2010, SJVN has widened its stakeholders base and Corporate Governance disclosure requirement in terms of Clause 49 of the listing agreement. We are committed to fulfill corporate objective of wealth maximization of shareholders of the company besides greater responsibility towards the socio-economic development of society. In today's uncertain and volatile business world, the need to manage risk more coherently, comprehensively and economically through effective Risk Management System is more critical than ever.

I extend my sincere thanks to every member of Risk Management Team headed by Shri N C Bansal, ED (Elect. Design) who kept their commitment and brought out the "Risk Management Policy" of SJVN well before the MOU target bestowed upon them. I hope their efforts will enable SJVN to mitigate its risks of doing business and to sail through any turmoil it may encounter in the course of execution of its projects or operation of its Power Plants.

The Risk Management Policy of SJVN has been approved by Board duly vetted by REC and categorically addresses Business Environment Risks, Strategic Business Risks and Operational Risks and their corresponding mitigation measures. Besides macro risk factor pertaining to execution or operation stage of a project, the Policy also addresses the micro issues like interest rate and currency risk under its inbuilt Hedging Policy.

With earnest efforts from all concerned, SJVN is expected to look into the finer aspects of various mitigation measures and to adopt them culturally leading to a risk-free and prosperous organization.

With all best wishes!

(A S Bindra)
Director (Finance)

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RISK MANAGEMENT POLICY

1.0 INTRODUCTION

Risk Management is a mechanism for dealing with various aspects of associated risks in managing any business activity. It is a structured approach to manage risk resulting from all kinds of threats and involves treatment of risk, embracing both the analysis and handling of risks, using appropriate forms of risk control. Therefore, in the broadest terms, Risk Management is concerned with the planning, organizing and controlling of activities and resources in order to minimize the impact of risks.

The objective of the risk management is to reduce risks related to a pre-selected domain to an acceptable level. It may refer to numerous types of threats caused by environment, technology, humans, organization and politics. On the other hand it involves all means available to humans or to a risk management entity (employees, other stakeholders and organization). The Risk Management strategies include avoiding the risk, reducing the negative effect of the risk, transferring the risk to another party and accepting some or all of the consequences of a particular risk.

Risk Management makes an effective contribution to the achievement of the corporate objective and deserves the status of a separate managerial function. Thus, in terms of corporate objective, Risk Management is an integral part of various functional management areas.

SJVN, primarily a Hydro Power developer faces significant sector specific and location specific risks in implementation of Projects. Project Risk Management assumes greater significance in the wake of inherent risks associated with Social, Environment, Geo-technical conditions etc. In addition there are uncertainties, often linked to political pressures and negative publicity related to environmental and social aspects, often resulting in public disturbances. All these risks cause time and cost overrun. Similarly, for Plants under operation there are threats of accidents, machine break down, generation loss etc. In addition Hydrology risk may affect the revenue. For sustainable development all these risks need to be effectively handled.

SJVN has now expanded from one project in operation in Himachal Pradesh to beyond geographical boundaries of the State and then of the Nation. Across the vast tract of the Himalayas, SJVN is working on exploring and executing hydropower projects in Uttarakhand and Arunachal Pradesh besides neighboring countries of Nepal and Bhutan. It has since diversified from Hydro Power to Power Transmission to Renewable Energy and now to Super Critical Thermal Power in the state of Bihar.

However, expansion and diversification have also brought along with the enhanced degree of risks associated to each activity. The factors that have contributed to such increase are

- The need for increased efficiency, innovation and differentiation, while always important, has escalated in importance as organizations seek new ways to differentiate themselves. This leads to taking new risks.
- Change in Government Policies can impact businesses
- Increased exposure to international events due to globalization
- Financial markets are more volatile
- Increased operational excellence
- Interest rate and Foreign exchange fluctuations
- Lack of expertise in new area

Hence, in today's uncertain and volatile business world, the need to manage risk more coherently, comprehensively and economically through effective Risk Management System is more critical than ever. This Risk Management Policy is an effort to give directions to adopt suitable mitigation measures in subsequent chapters.

2.0 TERMS AND DEFINITIONS

2.1 Risk

Risk is often described by an event, a change in circumstances or a consequence that may occur, and whose occurrence, if it does take place, has a harmful or negative impact on the achievement of the organization's business objectives. Thus, risk is the effect of uncertainty on objectives.

2.2 Risk Management

Risk Management is the coordinated activities to direct and control an organization with regard to risk. It is the process whereby organizations methodically address the risks attached to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities.

2.3 Risk Management Policy

Risk Management Policy is a statement of the overall intentions and direction of an organization related to Risk Management.

2.4 Risk Management Framework

Risk Management Framework is a set of components that provide the foundations and organizational arrangements for designing, implementing, monitoring, reviewing and continually improving Risk Management throughout the organization.

2.5 Risk Management Plan

Risk Management Plan is a scheme or an operation plan within the Risk Management Framework specifying the approach, the management components and resources to be applied to the management of risk.

2.6 Risk Strategy

The Risk Strategy of an organization defines its readiness towards dealing with various risks associated with the business. It describes the organization's risk appetite or tolerance levels and decision to transfer, reduce or retain the risks associated with the business.

2.7 Risk Owner

Risk Owner is a person or entity with the accountability and authority to manage risk.

2.8 Risk Assessment

Risk Assessment is defined as the overall process of risk identification, risk analysis and risk evaluation.

2.9 Risk Estimation

Risk Estimation is the process of carrying out quantitative, semi-quantitative or qualitative assessment of risk in terms of the probability of occurrence and the possible consequence.

2.10 Risk Identification

Risk Identification is a process of finding, recognizing and describing risks.

2.11 Risk Source

Risk Source is an element which alone or in combination has the intrinsic potential to give rise to risk.

2.12 Risk Tolerance / Risk Appetite

Risk Tolerance or Risk Appetite is a driver of Risk Strategy of an organization. It defines the maximum quantum of risk which the company is willing to take as determined from time to time in consonance with the Risk Strategy of the company.

2.13 Risk Description

A Risk Description is a comprehensive template covering a range of information about a particular risk that may need to be recorded in a structured manner. It is an input to the Risk Register.

2.14 Risk Register

A 'Risk Register' is a tool for recording the risks encountered at various locations and levels in a standardized format of Risk Description. It becomes a major input in formulating subsequent Risk Strategy.

2.15 Likelihood

Likelihood means the chance of something happening; whether defined, measured or determined objectively or subjectively, qualitatively or quantitatively and described using general terms or mathematically such as a probability or a frequency over a given time period.

2.16 Risk Profile

Risk Profile is a description of any set of risks that may relate to the whole or part of the organization, or as otherwise defined.

2.17 Risk Analysis

Risk Analysis is a process to comprehend the nature of risk and to determine the level of risk. It provides the basis for Risk Evaluation and decisions about Risk Treatment and includes Risk Estimation.

2.18 Risk Criteria

Risk Criteria is a terms of reference against which the significance of a risk is evaluated. They are based on organizational objectives and external or internal context and can be derived from standards, laws, policies and other requirements.

2.19 Risk Evaluation

Risk Evaluation is a process of comparing the results of Risk Analysis with Risk Criteria to determine whether the risk and / or its magnitude is acceptable or tolerable. It assists in the decision about Risk Treatment.

2.20 Risk Treatment

Risk Treatment is a process to modify a Risk. It that deals with negative consequences is also referred to as 'Risk Mitigation', 'Risk Elimination', 'Risk Prevention' and 'Risk Reduction'. It can create new risks or modify existing Risks.

2.21 Control

Control is a measure of modifying risk and includes any process, policy, device, practice or other actions which modify risk. It may not always exert the intended or assumed modifying effect.

2.22 Residual Risk

Residual Risk is a risk remaining after Risk Treatment. It can contain unidentified risk and also be known as 'Retained Risk'.

Terms and definitions not covered hereinabove will have the meaning as indicated under ISO 31000 : 2009.

3.0 Risk Management Policy

3.1 Objectives of the Policy

The main objective of this policy is to ensure sustainable business growth with stability and to promote a pro-active approach in reporting, evaluating and resolving risks associated with the business. In order to achieve the key objective, the policy establishes a structured and disciplined approach to Risk Management, including the development of the Risk Matrix, in order to guide decisions on various issues. The specific objectives of the Risk Management Policy are :

1. To ensure that all the current and future material risk exposures of the organization are assessed, identified, quantified, appropriately mitigated and managed
2. To establish a framework for the risk management process and to ensure its organization-wide implementation
3. To ensure systematic and uniform assessment of risks related with construction projects and operational power stations
4. To mitigate Interest rate risk and Foreign exchange fluctuations on account of high debt exposure
5. To enable compliance with appropriate regulations, wherever applicable, through the adoption of best practices
6. To assure business growth with financial stability.

3.2 Principles of Risk Management

In order to fulfill the objectives of this policy and lay a strong foundation for the development of an effective and integrated risk management framework, the policy outlines the following guiding principles of Risk Management :

1. Risk Management creates and protects value and contributes to the demonstrable achievement of objectives and improvement of performance in every area like human health and safety, security, legal and regulatory compliance, public acceptance, environmental protection, product quality, project management, operational efficiency, corporate governance and image building.
2. Risk Management is a part of the responsibilities of management and an integral part of all organizational processes, including strategic planning and all project and change management processes.
3. All investment decisions will be made after distinguishing among alternative courses of action with identification of expected risks.
4. The Risk Management Policy shall provide for the enhancement and protection of business value from uncertainties and consequent losses.
5. All employees of the organization shall be made aware of risks in their respective domains and their mitigation measures.
6. The risk mitigation measures adopted by the organization shall be effective in the long-term and to the extent possible be embedded in the business processes of the organization.

7. Risk tolerance levels will be regularly reviewed and decided upon depending on the change in organization's strategy.
8. The inputs to the process of managing risk are based on the best available information sources such as historical data, experience, stakeholder feedback, observation, forecasts and expert judgment. However, decision makers should inform themselves of and should take into account, any limitations of the data or modeling used or the possibility of divergence among experts.
9. Risk Management takes human and cultural factors into account by recognizing the capabilities, perceptions and intentions of external and internal people that can facilitate or hinder achievement of the organization's objectives.
10. The occurrence, progress and status of all risks will be promptly reported and appropriate actions be taken thereof.
11. Risk Management is transparent and inclusive by timely involvement of all the stakeholders; is dynamic, iterative and responsive to change by continually sensing them and facilitates continual improvement of the organization by developing and implementing strategies to improve their risk management maturity.

3.3 Risk Management Policy Statement

To protect and add value to the organization and its stakeholders through supporting the organization's objectives by :

- 1. Providing a framework for an organization that enables future activity to take place in a consistent and controlled manner*
- 2. Improving decision making planning and prioritization by comprehensive and structured understanding of business activity, volatility and project opportunity / threat*
- 3. Contributing to more efficient use / allocation of capital and resources within the organization*
- 4. Developing and supporting people and the organization's knowledge base*

4.0 Scope and extent of application

The policy guidelines are devised in the context of the future growth objectives, business profile envisaged and new business endeavors including new products and services that may be necessary to achieve these goals and the emerging global standards and best practices amongst comparable organizations. This policy is meant to ensure continuity of business and protection of interests of the investors and thus covers all the activities within the organization and events outside which have a bearing on the organization's business.

The policy shall operate in conjunction with other business and operating / administrative policies. The Risk management process shall become part of, and not separate from other organizational processes and in particular should be embedded into the policy development, business and strategic planning and review and change management processes.

There shall be an organization-wide risk management plan comprising project-wise operation plans to ensure that the risk management policy is implemented and that risk management is embedded in all of the organization's practices and processes. This shall invariably be integrated into other organizational plans, such as strategic corporate plan.

The policy will be a guiding document for risk management with an endeavor to facilitate the decisions at SJVN.

5.0 Risk Assessment

Risk assessment is the overall process of Risk identification, Risk analysis and Risk evaluation. The Process shall mainly cover the following in details :

- a) Risk Identification and Categorization – the process of identifying the company's exposure to uncertainty classified as Business Environment / Strategic Business / Operational
- b) Risk Description – the method of systematically capturing and recording the company's identified risks in a structured template covering a range of information about a particular risk
- c) Risk Estimation – the process for estimating the cost of likely impact either by quantitative, semi-quantitative or qualitative approach in terms of the probability or occurrence and the possible consequence

5.1 Identification and categorization of risks

As defined earlier, Risks are often described by an event, a change in circumstances or a consequence that may occur, and whose occurrence, if it does take place, has a harmful or negative impact on the achievement of the organization's business objectives.

The organization should identify sources of risk, areas of impacts, events and their causes with potential consequences. The aim is to generate a comprehensive list of risks based on those events that might create, enhance, prevent, degrade, accelerate or delay the achievement of objectives. Comprehensive identification is critical, because a risk that is not identified here will be missed from further analysis. This should include examination of the knock-on effects of particular consequences, including cascade and cumulative effects.

The organization should apply risk identification tools and techniques that are suitable to its objectives and capabilities and to the risks faced. Relevant and up-to-date information including background information is important.

Key characteristics by which risks can be identified are:

- Risks are adverse consequences of events or changed circumstances
- Their occurrence may be identified by the happening of trigger events
- Their occurrence is uncertain and may have different extents of likelihood

Recognizing the kind of risks that SJVN is/may be exposed to, risks will be classified broadly into the following categories :

1. **Business Environment Risk** : include the range of external events and trends (like Government policy, competition, court rulings or a change in stakeholders' requirements) that can adversely impact the organization's strategic growth trajectory and destroy shareholders' value.
2. **Strategic Business Risk** : include the risks associated specifically with the organization and having an adverse impact on the organization's capability to execute activities critical for business growth, thereby affecting its near-term performance e.g. occurrence of a risk event delaying the timely completion of construction activity of a hydro-electric power generation project leading to the deferment of revenues expected from the project.
3. **Operational Risk** : are those risks which are associated with operational uncertainties like unpredictable changes in water levels, fuel supply, acts of nature like floods affecting operations, internal risks like attrition etc.

5.2 Risk Description

Risk Description provides an input to Risk Estimation and to decisions on whether risks need to be treated and on the most appropriate risk treatment strategies and methods. It involves consideration of the causes and sources of risk, their likelihood consequences and identification of the factors that affect them.

Consequences and their likelihood can be determined by modeling the outcomes of an event or set of events, or by extrapolation from experimental studies or from available data. Consequences can be expressed in terms of tangible and intangible impacts. In some cases more than one numerical value or descriptor is required to specify consequences and their likelihood for different times, places, groups or situations.

A risk description helps in understanding the nature and quantum of risk and its likely impact and possible mitigation measures. Risk descriptions for each of the risks identified in the Risk Matrix are to be documented and recorded in a structured template in each area where the risk is identified. The suggested coverage is provided below :

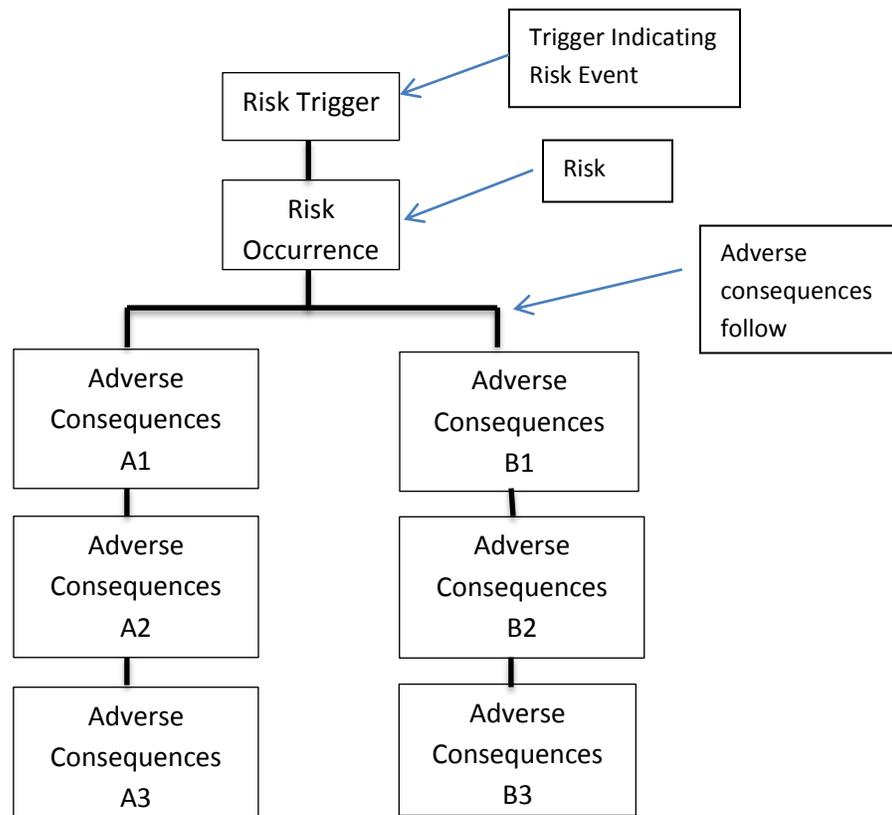
Risk Description

1.	Name or Title of Risk	Unique identifier or Risk Index – short description by which the risk may be referred to
2.	Scope of Risk	Qualitative description of the events by which the occurrence of the risk may be identified, any measurement indicating the size, type, number of the events and their related dependencies
3.	Nature of Risk	Classification of Risk – Business Environment / Strategic Business / Operational. Also timescale of potential impact and description as Hazard, Opportunity or Uncertainty
4.	Stakeholders	List of stakeholders affected, both internal and external, and impact on their expectations
5.	Risk Evaluation	Quantification of Risk i.e., likelihood and magnitude of event and possible cost of impact or consequences, should the risk materializes at current level
6.	Loss Experience	Previous incidents and prior loss experience of events related to the risk
7.	Risk Tolerance, Appetite or Attitude	# Loss potential and anticipated financial impact of the risk # Target for control of risk and desired level of performance # Risk attitude, appetite, tolerance or limit of the risk
8.	Risk Response, Treatment and Control Mechanisms	# Existing control mechanism and activities # Levels of confidence in existing control system # Identification of protocols for monitoring and review of the process of treatment and control
9.	Potential Action for Improvement	# Potential for cost effective risk improvement or modification # Recommendations and deadlines for implementation # Responsibility for implementing any improvement
10.	Strategy and Policy Developments	# Identification of function responsible for developing the strategy and policy for monitoring, control and mitigation of the risk # Responsibility for auditing compliance with control

5.3 Risk Estimation

In this process, the consequences of the risk occurrences have to be quantified to the maximum extent possible, using quantitative, semi-quantitative or qualitative techniques.

Process of risk quantification for the organization has to be qualitative, supported by quantitative impact analysis. To apply this approach, the chain of adverse consequences (refer diagram below) which may occur in case the identified risk materializes, should be enlisted.



For each of the chain of adverse consequences, efforts will be made to quantify its impact for each particular risk. In such an exercise, estimated cost impact like claims by contractor, loss of equipment value etc. as well as opportunity cost like loss in realization of revenue, delay in commission of project etc. will be considered.

According to the adverse impact analysis for identified risks, an appropriate risk category shall be determined for each risk identified as per the criteria below :

Risk Estimation

Consequences of Risk (Cost of Impact – Stakeholder or Strategic or Financial)	
Devastating	<ul style="list-style-type: none">✓ Significant stakeholder concern✓ Significant impact on strategy or operational activities✓ Cost of impact is likely to be or exceed ₹ 100 Crores p.a.
Major	<ul style="list-style-type: none">✓ Major stakeholder concern✓ Major impact on strategy or operational activities✓ Cost of impact is likely to be ₹ 50 Crores or more but less than ₹ 100 Crores p.a.
Tolerable	<ul style="list-style-type: none">✓ Moderate stakeholder concern✓ Moderate impact on strategy or operational activities✓ Cost of impact is likely to be ₹ 10 Crores or more but less than ₹ 50 Crores p.a.
Minor	<ul style="list-style-type: none">✓ Minor stakeholder concern✓ Minor impact on strategy or operational activities✓ Cost of impact is likely to be less than ₹ 10 Crores p.a.

Note : The cost impact estimation corresponding to the Risk categories have been indicated based on the similar cost impact assessment in the industry.

5.4 Risk Assessment Techniques

Risk assessment is a fundamentally important part of the risk management process. In order to achieve a comprehensive risk management approach, organization needs to undertake suitable and sufficient risk assessments. A range of the most common risk assessment techniques is set out in the Table below for guidance :

Technique	Brief Description
Questionnaires and checklists	Use of structured questionnaires and checklists to collect information to assist with the recognition of the significant risks
Workshops and brainstorming	Collection and sharing of ideas and discussion of the events that could impact the objectives, stakeholder expectations or key dependencies
Inspections and audits	Physical inspections of premises and activities and audit of compliances with established systems and procedures
Flowchart and dependency analysis	Analysis of processes and operations within the organization to identify critical components that are key to success
HAZOP and FMEA approaches	Hazard and Operability studies and Failure Modes Effects Analysis are quantitative technical failure analysis techniques
SWOT and PESTLE analyses	Strengths, Weaknesses, Opportunities and Threats (SWOT) and Political, Economic, Social, Technological, Legal and Environmental (PESTLE) analysis offer structured approaches to risk recognition

The purpose of above analysis is to assist in making decisions, based on the outcomes, about which risks need treatment and the priority for treatment implementation.

6.0 Corporate Governance

6.1 General – Clause 49 of Listing Agreement

Clause 49 intends to protect the interest of the stakeholders through good corporate governance practices and disclosures. The revised Clause 49 has been made effective from January 1, 2006.

It requires reporting by the board of directors in “Management Discussion and Analysis” an appropriate disclosure on risk management, and for this the company is expected to lay down process to inform board members about the risk assessment and minimization procedures. These procedures should be periodically reviewed to ensure that management controls risk through means of a periodically defined framework.

Risk management, therefore, is a critical component of corporate governance and an area of disclosure in the report of Board of Directors. However, most Indian companies view management to minimize the losses rather than looking at a comprehensive approach for maximizing shareholder’s wealth.

One of the greatest and most important challenges for Management is to define the optimal risk level for their business to ensure that the activities of the organization produce risk-adjusted returns.

Boards must ensure that all significant risks are managed through a well-defined framework. The organizations are reasonably aware of the risks related to their specific business areas.

However, the measurement, consolidation and aggregation of risk exposure are rarely carried out in a systematic manner. Even when organizations are good at identifying various risks they face, they often make mistake in dealing with these risks in a piecemeal manner or they do not consider all options available to deal with the risks. The process required substantial efforts, in identifying all the risks applicable to the company, then from within them to prioritize based on their potential impact and significance, and finally to identify holders for these key risks and to put in place mitigation plans considering all possible options.

An enterprise-wide view of risk management can greatly improve efficiencies and generate synergies.

Provisions of the revised Clause 49 shall be applicable as follows :

- All listed entities having a paid up share capital of ₹ 3 Crores and above or net worth of ₹ 25 Crores or more at any time in the history of the company.
- For other listed entities which are not companies, but body corporate (e.g. private and public sector banks, financial institutions, insurance companies etc.) incorporated under other statutes, the revised Clause 49 will apply to the extent that it does not violate their respective statutes and guidelines or directives issued by the relevant regulatory authorities.
- The revised Clause 49 is not applicable to Mutual Funds.

6.2 Applicability to Risk Management

Clause 49 (IV) (C) – Board Disclosures – Risk Management :

The company shall lay down procedures to inform Board members about the risk assessment and minimization procedures. These procedures shall be periodically reviewed to ensure that executive management controls risk through means of a properly defined framework.

Clause 49 (IV) (F) – As part of the directors' report or as an addition thereto, a "Management Discussion and Analysis Report" should form part of the Annual Report to the shareholders. This report should include discussion on the following matters within the limits set by the company's competitive position :

- i. Industry structure and developments
- ii. Opportunities and Threats
- iii. Segment-wise or Product-wise performance
- iv. Outlook
- v. Risks and concerns
- vi. Internal control systems and their adequacy
- vii. Discussion on Financial Performance with respect to Operational Performance
- viii. Material developments in Human Resources / Industrial Relations front, including number of people employed

In spite of making it mandatory for all listed companies in India to disclose (in their report of Board of Directors) the risk faced and the adequacy of risk-management processes in their organization, the quality of such disclosures have not been satisfactory. Most of the companies are adopting defensive approach to minimize the negative impact of risks.

All decisions making within the organization, whatever the level of importance and significance, involves the explicit consideration of risks and the application of risk management to some appropriate degree. The genesis of disclosure about risk management in the report under corporate governance is that transparent communication to investors about enterprise-wide risk management approach should create positive impact ultimately for creation of shareholder value.

This can be supported by records of meetings and decisions to show that explicit discussions on risks took place. In addition, it should be possible to see that all components of risk management are represented within key processes for decision making in the organization, e.g., for decisions on the allocation of capital on major projects and on restructuring and organizational changes. For these reasons, a sound Risk Management System is seen within the organization as providing basis for effective Corporate Governance.

6.3 Communication

Enhanced risk management includes continual communications with external and internal stakeholders, including comprehensive and frequent reporting of risk management performance, as part of good Corporate Governance.

This will be done by communication with stakeholders as an integral and essential component of risk management. Communication in SJVN will be a two-way process, such that properly informed decisions can be made about the level of risks and the need for risk treatment against properly established and comprehensive risk criteria.

Comprehensive and frequent external and internal reporting on both significant risks and on risk management performance contributes substantially to effective governance within an organization.

7.0 Risk Matrix

Risk category

Applicable to Industry : **I** or SJVN : **S**

Nature of Risk : Controllable : **C**, Un-Controllable : **UC**, Partly Controllable : **PC**

Likelihood of occurrence (Rating) : |-----|-----|-----|-----|

1
2
3
4
5
 Least likely Most likely

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
A	Business Environment Risk							
A 1	Politico-legislative	Being in concurrent list, both the Centre and State may enact a law on Electricity	I / S (UC)	Drafting of a new law	3	# Efforts to make relevant provisions in MOU # Approach regulatory agency for compensation of loss		BD & MS / CP & M C&SO
A 2	Political	Losing projects due to state level exigencies / policies / decisions	I (UC)	Continuous	2	Liaison and coordination with State Govt.		BD & MS / CP & M
A 3	Politico-legal	Land acquisition problem may hamper the entire process	S (PC)	Local resistance / Notices	4	Liaison and coordination with State Govt. and local authorities / people		Project
A 4	Environment	Policy changes on river water release may impact the project viability	I / S (UC)	Policy review	3	# Efforts to make relevant provisions in MOU # Approach regulatory agency for compensation of loss		BD & MS / CP & M C&SO
A 5	Economic	Policy changes may disrupt business expansion plan	I / S (UC)	Policy review	2	Sensitivity analysis		BD & MS
A 6	Securitization	Adverse regulatory policy development may disturb the payment security	I / S (PC)	Release of draft policy	4	# Adopt pro-active policy advocacy with regulatory authority # Efforts to have in-built payment security mechanism in PPA		C & SO C & SO

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
A 7	Market Dynamics	Tariff based bidding will increase competition	S (C)	Continuous	5	Learn and gain experience from development in Power Sector		BD & MS / C & SO
A 8	Force Majeure	Impact of natural calamity like flood, land slide, earthquake etc. may be harsh enough to adversely affect the project execution or O&M of Power Station	I (UC)	Continuous	1	<ul style="list-style-type: none"> # Comprehensive hydrological studies to be undertaken # Obtain regional geological map for identification of seismic source for the contemplated project # Carry out seismological studies and evaluate seismic parameters. # Take necessary design measures to mitigate the earthquake risk # Identify potential land slide in the project area. # Assess their impact on the project and make necessary provisions # Indemnify the company against possible losses by insuring the projects / power plants under natural calamity risk # making provisions in the PPA # approaching regulator/Regional Power Committee (RPC) in such events # Formulate Risk Management Operation plan for Power Plant / Project with delegation of responsibility # Formulate Disaster Management Plan within Risk Management Operation Plan and align / 	<ul style="list-style-type: none"> Design / Project Geology / Design / Project Contract C & SO C & SO Project Project / CP & M 	

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
						coordinate with State / central Govt. disaster management authority		
A 9	International	Construction of Dam or diversion of river by cross border activity may jeopardize the Hydro Project / Power Station	I (UC)	Sudden loss of water / Int'l news	4	# Coordinate with Government to take adequate measures / surveillance # Carry-out related impact study		CP & M Design/Environment
A 10	International / Domestic	Int'l water treaties with neighboring countries / several inter-state water agreements are subject to varied interpretations by Govt. (s) or Court.	I (UC)	Any new discussion / development	3	# Adopt focused approach at project development stage and remain alert thereafter # Carry-out related impact study		BD & MS / CP & M Design
A 11	International / Domestic	River flows depend on the activities, natural or otherwise, take place upstream on the tributaries, main river and in the catchment area	I (UC)	Continuous	3	Adopt focused approach at project development stage and remain alert thereafter		BD & MS / CP & M / Design
A 12	International / Economic	Foreign exchange risk may increase the Rupee liability	I/S (PC)	Fluctuation trend	3	# Hedge with appropriate instruments available in the market like forwards, swaps, futures, options etc. # Strive to keep payment and financing currency same as far as possible		Corporate Finance Corporate Finance
A 13	International / Economic	Interest rate risk may increase the interest liability	I/S (PC)	Fluctuation trend	3	Hedge with appropriate instruments available in the market like forwards, swaps, futures, options etc.		Corporate Finance
B-D	Strategic Business Risk							
B	General							
B 1	Geographic expansion	Emerging markets in foreign countries expose us to a higher degree of financial, political,	S (PC)	New development threat	4	Protection in MOU / Project Development Agreement with jurisdiction of appropriate court		BD & MS

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
		economic and business risks thereat						
B 2	Project Characteristics	Allotted project may be complex enough to obtain clearances / approval at every stage leading to out of bound cost of the project	I (PC)	continuous	3	# Do homework and pursue the Government for single window clearances and time bound approval process # Efforts to off-take / share such risks in PPAs		BD & MS / CP & M C & SO
B 3	Statutory	Project may not move from PFR / DPR stage to next stage of development due to non-approval by one or more regulatory authorities	I / S (UC)	Out of control event	4	Close monitoring and if needed, move out of the project		CP & M
B 4	Market Dynamics	in case of tariff based competitive bidding environment, impact of time and cost over-run may question the viability of the project	S (C)	Time and cost over-run	5	# Develop an internal mechanism for effecting proper assessment of project cost components & improve the planning and execution to minimize time or cost overruns # Carry out Process Benchmarking for key business processes and establish standard times for each activity to be completed # Record the instances and take control measures in case a project component is delayed by 5% of the project time schedule # Build a Knowledge Management System in the form of a repository of all project related information to be used in estimation for new projects # Evaluate regularly the loss of revenue on account of delayed commissioning of a project and its impact on bottom line of the		CP & M Project Project CP & M / Cost Eng. / Design C&SO

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
						company # Monitor future scenario and PPAs to be framed so as to minimize the impact of time and cost overrun		C & SO
B 5	Organizational	Delay in decision making / hurdles may not deliver the result	S (C)	continuous	3	# Be alert about delays in decision making leading to financial impact # Adequate Delegation of Power for smooth decision making		All departments
B 6	Organizational	Attrition rate / Poaching (Manpower) in industry may lead to chaos	I/S (PC)	Performance set-back	3	# strengthen the system and remove indispensability # create a strong retention policy # strive on job orientation, transfer and promotion policy		All Depts. P&A P&A
B 7	Organizational	Fraud and corruption may cause financial lose and malign the image of corporation affecting its business prospect	I/S (C)	Adverse reporting	3	# robust Internal Audit mechanism # Preventive vigilance # fame a fraud prevention policy # develop a fraud risk profile and undertake a regular review of such risks associated with each of the key organizational objectives in order to keep the profile updated		IA Vigilance IA IA
B 8	Corporate Governance	Non-compliance under Section 49 of SEBI rules may lead to delisting of the company	S (C)	Notice against the company	3	# Create check and balance measure in ERP # Robust Internal Audit mechanism		CS / IT& C IA
B 9	Corporate Governance	Poor communication strategy may undermine the Performance of company leading to poor rating in the market, low stock price and affecting future fund raising capability / cost of capital of the company	S (C)	Stringent terms of interest / low stock price	4	# Professional communication strategy with media and stakeholders as an integral and essential component of Risk Management # Counter adverse profiling of the company		Corporate Communication Corporate Comm.
B 10	Technology	Obsolete IT and discrete Communication system create misleading data and may not	S (C)	Discrete reporting	5	Adopt ERP and real time communication system		IT & C

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
		sustain growth						
B 11	Organizational	Management System Failure (haphazard Business Plan, ad-hoc decision making, lax Financial Management etc.) may affect sustainability and health of the company	S (C)	Credit Rating / Continuous	3	Long term strategy, Continual growth, Institutional strengthening backed by ERM Technology / ERP		Integrated activities (BD &MS / CP & M / F&A / IT&C)
C	Pre-construction							
C 1	Socio Political	Ineffective R&R policy or delay may create social unrest	I (PC)	Impact on critical path	4	# Follow National R&R Policy with effective communication strategy in association with state authorities to abide by state procedures # Form a team to carry out meaningful R&R / CSR activities, create social infrastructure with income generation opportunity # engage local bodies / NGOs in various development committees # Go for third party CSR audit		R&R R&R / CSR R&R / CSR CSR
C 2	Political	Law & Order and other local problems, poor infrastructure may cause irrecoverable delay	I/S (PC)	Continuous	4	# Involve in joint publicity with Govt. and local agencies , identify strategic Govt. Depts., do proactive liaising # Better coordination with Govt. and local agencies # Develop alternate infrastructure like road, water supply, power back-up etc.		Corporate Communication Project Project
C 3	Geographical	Adverse climate, difficult terrain and inadequate resources may have impact on working conditions causing initial delay	I (UC)	Continuous	2	Strong and resourceful project preparation		Project
C 4	Design and Development	EGOs like tunnel collapse, high ingress of water, high temperature, landslides may	I (PC)	Impact on critical path, time or cost	4	# comprehensive geological base study, engagement of expert and robust design mechanism of Int'l		Geology / Design

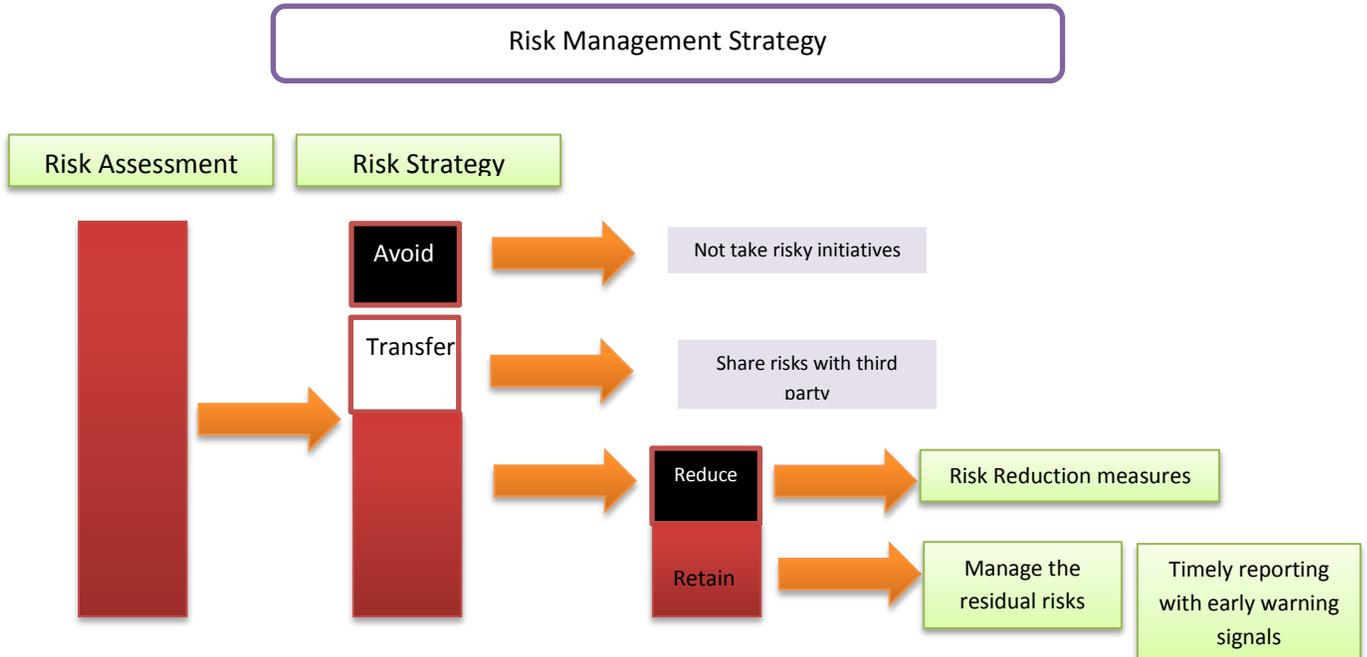
No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
		make working conditions extremely difficult resulting into time and cost overrun		overrun		standard # Build and use a Knowledge Management System in the form of a repository of all project related information # Emergency preparedness Plan		CP & M / Cost Eng. / Design Project
C 5	Design and Development	Hydrological Data may not be reliable	I (PC)	Hydrology mismatch	2	#Source data only from genuine agency # Also verify by carrying out independent study		Design Design
C 6	Contractual	Imbalance packaging and impractical contract conditions may lead to delay in award and litigation at construction stage causing delays	S (C)	Past experiences	3	# follow scientific packaging # Follow FIDIC conditions/ Standard Bidding Document with necessary modification		CP & M Contract
D	Construction							
D 1	Operating Conditions	Extreme climate, poor connectivity and scarce facilities may pose uncertainties in working leading to project delay and also to litigation	I (UC)	Impact on critical path	1	# schedule project network accordingly # Take care of cost impact in MOU as a pass-through item in tariff # Incorporate such conditions suitably under Force Majeure clause of the contract		CP & M BD & MS CP & M Contract
D 2	Market / Economic	Significant increase in prices or shortages of construction materials may increase project cost to vary significantly from initial estimates	I/S (PC)	Cost variance	3	# enforce contract conditions so as to ensure efficient Materials Management – determine inventory level and lead time judiciously #provide for proper price variation clause in the contract		Contract Contract
D 3	Contract Management	Dependency on various contractors for construction & development and for the supply of materials & equipment and any failure on their part may	S (C)	Impact on critical path and cost variance	4	# Adopt proven procedure and QR to filter out inexperienced vendor # Strong Project Management System to have control on the network activities		Contract Project / CP & M

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mechanism	Mitigation	Lead Dept. (s)
		affect our operations				# Put erring contractor on a negative list # proper coordination among various contracting agencies		Contract Project
D 4	Power Supply	Unreliable power supply may disrupt the construction activities	S (c)	Erratic output	4	Suitable provision in the contract on power supply		Contract
D 5	Power Equipment	Delay in supply will delay the commissioning which further may lead to dilution of warranty	S (c)	Impact on critical path	3	# Consider suppliers with proven technologies # Liaise with Ministry in case of PSU supplier # Provision of LD and suitable warranty clause in the contract		Contract CP & M Contract
D 6	Claims / Disputes	Claims mismanagement or disputes may escalate cost of the project questioning viability of the project	S (C)	Exaggerated claims	4	# Develop expeditious claims clearance procedure within Project Management System # Follow FIDIC principle / Standard Bidding Document of in-built or external dispute resolution mechanism		Contract Contract
D 7	Terrorism / Law & Order	May vary in degree from state to state but leads to substantial and continuing economic and social volatility, which may materially affect the project activities	I (PC)	Continuous	3	# Keep close liaison with respective Govt. and law enforcement agencies # Deploy adequate security # keep terrorism and sabotage activity as a part of insurance cover		Project / P&A Project / P&A Contract
E	Operational							
E 1	Operating conditions	Climate change leading to hydrological surprises like inadequate rain, change in river flow or freezing pattern etc. may reduce the generation	I (UC)	Below planned generation	1	# Take this into consideration while reviewing design energy # Take proactive action with regulatory authorities # Protection from loss of generation – sharing measure in PPA		Design C&SO C & SO
E 2	Operating conditions	Holding water by upstream project leads to generation loss	I/S (PC)	Sanction of upstream	4	# Pitch for River Valley Authority for holistic development of river basin		BD & MS (for new

No	Risk Head	Description	Category	Risk Trigger	Rating	Suggested Mitigation Mechanism	Lead Dept. (s)
				project		<ul style="list-style-type: none"> # Pursue the matter with appropriate authority for guaranteed supply of water independent of upstream projects # In absence of above, strive for change in Design energy # Protection from loss of generation– sharing in PPA 	project) / CP & M BD & MS (for new project) / CP & M Design C & SO
E 3	Operating conditions	Some of our hydroelectric projects are cascading projects	S (UC)	Disruption in upstream project	3	<ul style="list-style-type: none"> # Take this into consideration while formulating design energy with CEA # Approach the regulatory authority 	Design C&SO
E 4	Operating conditions	High silt level may damage the underwater parts leading to huge lose of equipment and consequential generation	S (C)	Continuous	5	<ul style="list-style-type: none"> # Close monitoring of silt level to prevent plant from damages # Hard coating and more R&D to design silt resistant turbine # Approach the regulatory authority # Protection from loss of generation– sharing in PPA 	Power Station Power St. / Design C & SO C & SO
E 5	Repair & Maintenance	Inadequate and poor equipment / civil maintenance may lead to loss of generation	S (C)	Break down	1	<ul style="list-style-type: none"> # Scheduled preventive maintenance and learning from historical performance data analysis 	Power Station
E 6	Fuel & POL Supply	Inadequate fuel supply and other support material may hamper the generation	I/S (c)	Intermittent supply	4	<ul style="list-style-type: none"> # Ensure feeder mines of adequate production capacity # Sign FSA with Fuel supplier # Arrange import of quality fuel against deficient supply 	BD & MS Project / F&A Project / F&A

8.0 Risk Management Strategy

Following is a framework to be used for the implementation of the Risk Management Strategy :



Best management of risk is to examine each risk and decide as to how to prepare for the risk of event, if it occurs. It involves defining enhancement steps for opportunities and responses to threats (see chart below). Depending upon the Risk Priority (Devastating, Major, Tolerable, or minor); strategy of action on imperative measures, considered measures or let risk happen, needs to be decided. Threats falling in the categories of devastating or major need special attention and those in the categories of tolerable or minor need careful attention. Response to threats generally falls into one of four categories:

- (i) Avoidance, whether to avoid the risk carrying activity
- (ii) Transference, whether to transfer the risk to another participant
- (iii) Reduction, whether to reduce the risk (risk abatement) or
- (iv) Retention, whether to accept the risk (risk retention)



(i) Avoidance :

Avoidance may seem the answer to all risks but avoiding risks also means losing out on potential gain that accepting (retaining) the risk may have allowed. For example, not entering into a business to avoid the risk of loss also avoids the possibility of earning profits.

Risk Avoidance is eliminating a specific threat, usually by eliminating the cause. All risks can never be eliminated, but specific risk events can often be eliminated.

(ii) Risk Transfer :

It is a mitigation measure by having another party to accept the risk, either partial or total, typically by contract or by hedging. It is shifting of the risk burden from one party to another. This is usually done through conventional insurance (as a post event compensatory mechanism) and through the use of contract indemnification provisions (involving contract language that transfers a risk to another party without payment of an insurance premium). A risk insurance plan needs to be drawn, updated and implemented. Through Risk transfer via Conventional Insurance, one may recover costs, but it may not be possible to retrieve time loss and consequential damages. Thus risk transfer does not imply that caution can be thrown to winds.

(iii) Risk Reduction / Abatement:

Risk reduction / abatement is a process of combining loss prevention or loss control to minimize a risk. It is reducing the expected monetary value of a risk event by reducing the probability of occurrence (e.g., using proven technology to lessen the probability that the product of the project will not work like Shot-Crete to prevent loss), reducing the risk event value (e.g., buying insurance), or both.

This strategy serves to reduce the loss potential and decrease the frequency or severity of the loss. Risk abatement is preferably used in conjunction with other risk management strategies, since using this method alone will not totally eliminate the risk.

(iv) Risk Retention :

This strategy is used only when it is impossible to avoid, transfer or reduce the risk. Or, based on an evaluation of the economic loss exposure, it is determined that the diminutive value placed on the risk can safely be absorbed. Another consideration in retaining a risk is when the probability of loss is so large or catastrophic that they either cannot be insured against or the premium would be infeasible. It is also a viable strategy for small risks where the cost of insuring against the risk would be greater over time than the total losses sustained.

Risk Retention or Acceptance is accepting the consequences. Acceptance can be **active** e.g., by developing a Contingency Plan / Disaster Management Plan to execute,

should the risk event occur or **passive** e.g. by accepting a lower profit / time & cost overrun, if some activities overrun.

8.1 Selection of a Risk Management Strategy

The success of Risk Treatment much depends upon the robustness of Risk Management Strategy. The options enumerated above are not necessarily mutually exclusive or appropriate in all circumstances. They can be considered and applied against a particular risk either individually or in combination. However, the treatment plan should clearly identify the priority order in which an individual risk treatment should be implemented.

Selecting the most appropriate Risk Management Strategy involves balancing of costs and efforts of implementation against the benefits derived with regard to legal, regulatory and other requirements such as social responsibility and protection of the natural environment. Decisions should also take into account risks which can warrant risk treatment that is not justifiable on economic grounds, e.g., severe (high negative consequence) but rare (low likelihood) risks.

Though equally effective, some risk treatments can be more acceptable to some stakeholders than to others. Also risk treatment itself can introduce risks. A significant risk can be the failure or ineffectiveness of the risk treatment measures. Hence, monitoring and review need to be an integral part of the Risk Management Strategy to give assurance that the measures remain effective.

Risk treatment can also introduce secondary risks that need to be assessed, treated, monitored and reviewed. These secondary risks should be incorporated into the same treatment plan as the original risk and not treated as a new risk. The link between the two risks should be identified and maintained.

8.2 Preparing and Implementing Risk Treatment Plans

Risk Management Strategy shall document how the chosen treatment options will be implemented. The information provided in treatment plans should include :

- The reasons for selection of treatment options, including expected benefits to be gained,
- Those who are accountable for approving the plan and those responsible for implementing the plan,
- Proposed actions,
- Resource requirements including contingencies,
- Performance measures and constraints,
- Reporting and monitoring requirements and
- Timing and schedule.

Chosen Risk Management Strategy i.e., Treatment plans should be integrated with the management processes of the organization and discussed with appropriate stakeholders.

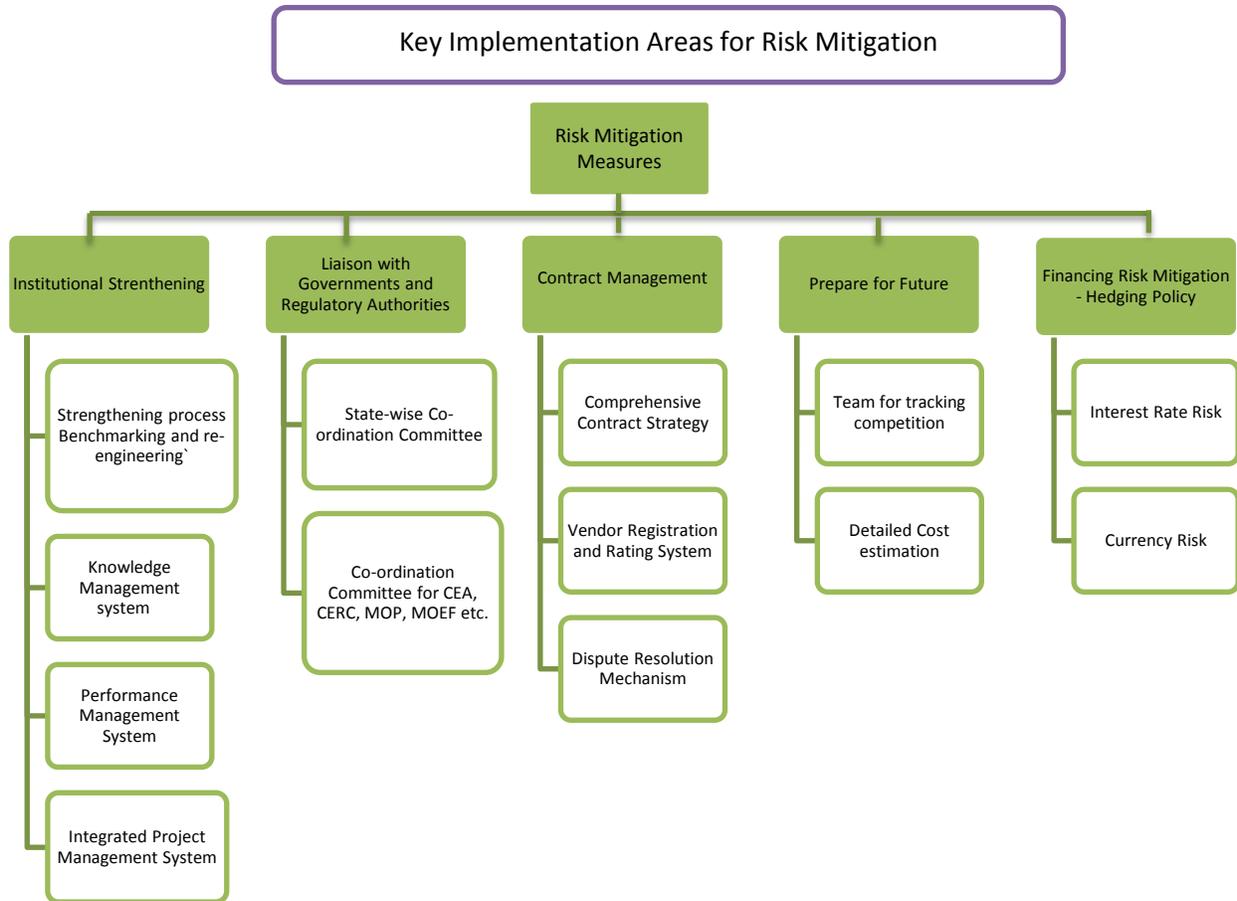
Decision makers and other stakeholders should be aware of the nature and extent of the residual risk after risk treatment i.e., taking a mitigation measure. The residual risk should be documented and subjected to monitoring, review and where appropriate, further treatment.

Avoid

Reduce

9.0 Key Implementation Areas for Risk Mitigation :

Following are the key areas where risk mitigation measures covered under Risk Matrix above need to be implemented :



1. Institutional Strengthening

- a) Strengthening, Process Benchmarking and Re-engineering for key Business Processes :Two key business processes to be focused on
 - i) Business Development and Management Services Process
 - ii) Corporate Planning and Monitoring Process

SJVN needs to strengthen these processes through detailed analysis and should conduct a benchmarking exercise for its key business processes. The complete processes should be studied and analyzed to make the system more robust and free from any misjudgment which may be potential causes of risks. The exercise should also aim to derive standards for each activity and if required re-jig processes to plug loop holes which may be causes of potential risks.

b) Knowledge Management System

KMS should be built to capture the learning of the organization. The KMS will provide benefits for future projects in terms of handling similar risks in other projects, providing better estimates of time and cost for specific activities, estimating occurrences of uncertain events and in capturing the tacit knowledge and experience of the organization's human resource.

c) Performance Management System

It is very important that SJVN follows Balanced Score Cards and MOU targets religiously across the organization so as to bring in more responsibility, accountability and drive into the personnel engaged in critical activities. Implementation of an outcome-linked PMS along with process benchmarking would clearly bring out the areas due to which performance of the projects and organization is slipping.

d) Integrated Project Management System

A seamless integrated Project Management System is required for quick response and prompt decision making as well as to bring to attention the areas of short-fall and for tracking delays.

2. Liaison with Governments and Regulatory Authorities

a) State-wise Coordination Committee

The role of each State Committee would be to pro-actively establish coordination with key State Government officials in all relevant Departments. The committee should also have the additional role of taking up meaningful CSR / R&R activities, creating social infrastructure with income generation opportunity in the respective states and to engage local bodies / NGOs in various development committees.

b) Coordination Committee for CEA, CERC, MOP, MOEF etc.

The key role of this committee will be to be in constant touch with CEA and CERC to understand pro-actively the direction of policy reforms and take initiative to bring out favourable policies. It should also interact pro-actively with the MOP and the MOEF to build strong coordination and favourable image of the organization.

3. Contract Management

a) Comprehensive Contract Strategy

SJVN needs to draw out a clear Contract Management Procedure to outline guidelines addressing key contract management issues including incentives related with timely completion of the work, handling of unforeseen uncertainties, criteria for allowing contractors to bid etc. The procedure should device preventive measures to avoid all contract related issues.

b) Vendor Registration and Rating System (VRRS)

The VRRS will devise a vendor registration process and contain the information about all vendors / contractors as well as limited information about contractors working for competitors. A vendor rating will be generated through this system based on the credentials of the vendor as well as past performance on critical parameters like time and cost overrun. This system will also capture learning from contract issues and help in making more robust contracts.

c) Dispute Resolution Mechanism

A dispute resolution mechanism for early and prompt settlement of contract disputes needs to be in place for all projects. This could be in the form of an in-built Board in terms of FIDIC conditions / Standard Bidding Document (SBD). The Board will run parallel to the contract review process under which regular review with the progress of the contract activities will highlight day-to-day issues. In case, such issues do not get addressed within a stipulated time and enlarge to cost impact beyond a limit they will be brought to the Board for prompt settlement.

4. Prepare for Future

a) Team for tracking competition

SJVN needs to form a team which will focus on competitive bidding in the market and tracking of all bidding details of various players. The team will also search and build up a database of latest technology to participate in a competitive bidding. A database of most competitive vendors should also be constantly maintained and evaluated. In addition, the team will work on establishing and maintaining benchmarks of various costs components.

b) Detailed cost estimation

There exists an emergent need to capture costs incurred in current projects in a manner so as to enable the company to prepare for competitive bids using accurate estimates of various cost components e.g. material, employee costs, detail break up of R&R expenses etc. specific to a project.

5. Financing Risk Mitigation

Interest and Currency rates in the Indian and International market have witnessed extreme volatility. Hence, any adverse movement can have significant impact on the cost of capital of the projects. This highlights the importance of Hedging Policy which can help in protecting the interest of organization.

10.0 Hedging Policy

10.1 Rational of the Policy

NJHEP, the first project of SJVN was provided a direct pass through loan of US \$ 437 million by Govt. of India, using proceeds of a loan obtained from the World Bank (WB) for that purpose. Besides it took a loan (ECB) from a consortium of European Banks for its electro-mechanical packages. For its second project RHEP, SJVN directly signed a loan agreement with WB with a Govt. guarantee for US \$ 400 million towards 70 % of its project cost. Its Luhri Hydro Electric Project (LHEP, 588+24 MW) has been tied-up for WB debt financing.

With a beeline of projects in hand, company may go for foreign currency (FC) loans for its many projects considering its cheaper cost and ease of financing. Thus, all our revenues are denominated in Rupees while a significant portion of our outstanding debt obligations are or expected to be denominated in foreign currencies such as the US Dollar or Euro. However, this exposes us to interest and exchange rate fluctuations. FC loans are mostly LIBOR (London Inter-Bank Offered Rate) based which has seen volatility at times. Further, Rupee term loan has floating rate of interest linked to base rate of respective Banks and with reset clause in case of Financial Institutions (FIs).

Accordingly, any depreciation of the Rupee against the US Dollar or other foreign currencies in which our indebtedness may be denominated, will significantly increase our funding costs. Even if we are able to recover the cost of foreign exchange variations through our tariff, this will impact the cost of power and so the viability of the project or otherwise our profitability, financial condition and results of operations will be materially and adversely affected.

Similar repercussions may be caused by interest rate fluctuations, domestic or international. While interest rate risk exists even in earlier stages of the project, it is most dramatic at the beginning of the operation phase since all of the investment in a project has been made and thus debt used to finance this investment is at its highest level, with revenues only beginning to pay down this debt. Interest rate risk is of particular concern if the interest rate sensitivity of the project's cash flow stream does not match the sensitivity of the loan financing the project (e.g., if profitability is insensitive to interest rate fluctuations, but financing is a floating rate debt).

Here comes the role of hedging and importance of a Hedging Policy which can help in protecting / enhancing the profit margins of SJVN. The Policy will address an investment position intended to offset potential losses / gains that may be incurred by a companion investment. These are exogenous kind of risks, the adverse effect of which can be reduced or potentially eliminated by allocating them to the parties that are most willing to bear them through the use of derivative securities.

10.2 Hedging Instruments

10.2.1 Forward Contract

A Forward Contract is an agreement between two parties to exchange a particular underlying security or commodity at a particular date in the future for a fixed price which is specified when the contract is written. The party who has committed to deliver the underlying commodity is said to have a short position. Conversely, the party which will pay a fixed amount in order to accept delivery of the commodity has a long position in the contract.

This is simple to use, most popular and can be used to cover most types of genuine exposures. Forward contract should be booked only to reduce existing risk and not to add to it. For instance, if the underlying exposure is Yen payable, by booking a third currency forward contract to buy Yen, the risk is reduced. Forward contract may be cancelled and rebooked subject to extant RBI regulations in this regard and the prudential stipulations regarding risk limits contained in this policy.

Forward contract can be booked for a fixed date or delivery during a fixed period. Other than US Dollar currency exposure against the Rupee can be handled in two steps – Currency/US \$ and US \$/₹ and each step can be covered separately. Cover can be taken for a period shorter than actual maturity of the exposure and can be cancelled or rolled over.

However, interest rate forward agreement is not itself an asset or commodity. A forward rate agreement(FRA) locks in a specific interest rate in the future at which one can either borrow (a short position) or lend (a long position). The interest rates that can be locked in using FRAs, also called forward rates, are determined based on the interest rates for different maturity bonds. For example, in US the rate for a six to nine month FRA depends on the rates for six and nine months Treasury Bills (T-Bills). The Rate on the FRA is such that an investor would be indifferent between buying a nine months T-Bill versus buying a six month T-Bill and then locking a lending rate for the following three months through FRA.

10.2.2 Swaps

The two most common types of swaps are currency swaps and interest-rate swaps.

Currency swap is a foreign currency contract whereby the buyer and seller exchange equal initial principal amounts of two different currencies at the spot rate. The buyer and seller exchange fixed or floating rate interest payments in their respective swapped currencies over the term of contract. At maturity, the principal amount is effectively re-swapped at a predetermined exchange rate so that the parties end up with their original currencies. The advantages of swaps are that firms with limited appetite for exchange rate risk may move to a partially or completely hedged position through the mechanism of foreign currency swaps, while leaving the underlying borrowing intact.

Apart from covering the exchange rate risk, swaps also allow firms to hedge the floating interest rate risk. An interest rate swap involves exchanging a fixed interest payment for a variable interest payment. The variable payment is tied to a well-known floating interest rate index such as LIBOR (London Inter-Bank Offered Rate). The actual dollar amount that is exchanged by the two counterparties at each payment date is calculated by taking the annualized interest rate differential between the fixed and variable rates at that date, dividing it by the number of payment periods per year, and multiplying it by the notional amount of the swap. For example, for a \$100 Million swap, if the fixed leg of the swap is 7% and LIBOR is equal to 7.2%, then the variable-rate payer is required to pay \$100,000 ($= 0.5 * 0.2\% * \100 Million) to the fixed-rate payer, assuming semi-annual payments.

As with forward prices or rates, the swap 'price' or rate is determined in such a way to make the contract have a zero value at the outset, i.e., no money is exchanged when the contract is written, and the prices or rates for future delivery are considered fair by both parties. Roughly speaking, the swap rate is determined by averaging the forward interest or currency rates over the entire period of the swap, since one rate applies to all of the payment dates.

The traditional swap described above is termed a plain vanilla swap.

10.2.3 Futures

A futures contract is similar to the forward contract but is more liquid because it is traded in an organized exchange i.e. the futures market. Depreciation of a currency can be hedged by selling futures and appreciation can be hedged by buying futures. Advantages of futures are that there is a central market for futures which eliminates the problem of double coincidence. Futures require a small initial outlay (a proportion of the value of the future) with which significant amounts of money can be gained or lost with the actual forwards price fluctuations. This provided a sort of leverage. However, the tailor ability of the futures contract is limited i.e., only standard denominations of money can be bought instead of the exact amount that is bought in a forward contract.

The margin and marked-to-market arrangements are standard features of futures contracts. These contracts, which trade on organized exchanges such as the Chicago Board of Trade, are very similar to forward contracts, but have several distinguishing features. First, there is virtually no risk of counter-party default since the counter-party is a clearinghouse backing the exchange which is AAA-rated. The exchange has a high credit rating because it takes no un-hedged market positions itself, and it limits its exposure to credit risk by requiring all market participants to post margin and to pay up losses on a daily basis through its daily resettlement process.

Second, because futures contracts trade on major exchanges, there is an active secondary market for these contracts, ensuring high liquidity, meaning that it is easy to get out of a contract without paying large transaction costs (typically measured by the difference in the bid and asked prices for these contracts). In order to obtain active

trading in futures contracts, however, these securities are designed to be highly standardized, so that market participants are trading relatively limited set of contracts. For example, the size of the Pound futures contract on the Chicago Mercantile Exchange is 62,500 Pounds, and there exists only three or four maturity dates (which have reasonable liquidity). In addition, only some of the major currencies have futures traded on them at this point in time. Thus, it may be necessary to use forward contracts if a long-dated contract or a contract on an emerging market currency is needed.

10.2.4 Options

While forward, swap and futures contracts impose an obligation on the party with the short position to deliver an asset, and the party with the long position to accept delivery of the asset, option contracts allow one of the two parties involved in the contract the choice of whether or not to deliver (or to accept delivery). There are two main types of option : *calls and puts*. In each case, one party (the holder) purchases the option and the other party (the writer) sells the option and receives the proceeds from the sale.

In the case of the call option, the holder has the right, but not the obligation, to purchase an underlying asset for a specific price (called the exercise or strike price) at a particular date in the future (for a *European* option, or on or before the maturity date in the case of an *American* option). If the underlying asset value exceeds the strike price, the holder will exercise the option, and effectively earn the difference between the asset and strike prices. The option writer, being on the opposite side of the transaction, will be forced to sell the valuable asset and receive only the lower strike price in exchange. Note that if it is unprofitable to exercise the option, the holder will not do so, and will end up with a loss on his position equal to the up-front cost of purchasing the option.

The holder of a put option has the right to sell an underlying asset for a fixed strike price if it is profitable to do so at the maturity date. Unlike a short position in a forward contract, the put option holder does not have to face the possibility of an unlimited loss if the price of the underlying asset appreciates significantly.

Thus, a currency Option is a contract giving the right, not the obligation, to buy or sell a specific quantity of one foreign currency in exchange for another at a fixed price; called the Exercise Price or Strike Price. The fixed nature of the exercise price reduces the uncertainty of exchange rate changes and limits the losses of open currency positions. Options are particularly suited as a hedging tool for contingent cash flows, as is the case in bidding processes. Call Options are used if the risk is an upward trend in price (of the currency), while Put Options are used if the risk is a downward trend.

10.3 Hedging Framework

At first instance, Finance Dept. will chart-out its currency and interest exposure and follow the following six steps to undergo and manage hedging :

10.3.1 Forecast :

After determining its exposure, the first step is to develop a forecast on the market trends and what impact the main direction/trend is going to cast on the exchange rates and interest rates. The period for forecasts will be normally 6 months. It is important to base the forecasts on valid assumptions. Along with identifying trends, probability should be indicated for the forecast coming true as well as how much the change would be.

10.3.2 Risk Estimation:

Based on the forecast, a measure of the Value at Risk (the actual profit or loss for a move in rates according to the forecast) and the probability of this risk should be ascertained. Also, the System Risk that can arise due to inadequacies such as reporting gaps and implementation gaps in the exposure management system should be estimated.

10.3.3 Benchmarking :

Given the exposures and the risk estimates, a limit has to be set for handling foreign exchange exposure. It has also to be decided whether to manage its exposures on a Cost Centre or Profit Centre basis. A Cost Centre approach is a defensive one and the main aim is to ensure that cash flows of the company are not adversely affected beyond a point. A Profit Centre approach on the other hand is a more aggressive approach where it is decided to generate a net profit on its exposure over time.

The Policy envisages a Cost Centre approach unless a view in favour of Profit Centre is taken at the time of review of the Policy.

Suggested benchmarking is further elaborated under Section 10.4.

10.3.4 Hedging :

Based on the limits set to manage the exposure, an appropriate hedging strategy will be decided. There are various financial instruments available to choose from : forwards, swaps, futures and options. Suggested derivative products of generic nature or structured are :

Generic Derivative Products

- i) Forex Forward Contracts
- ii) Forward Rate Agreements
- iii) Interest Rate caps and floors
- iv) Plain Vanilla Options (call option and put option)
- v) Interest Rate Swaps
- vi) Currency Swaps including Cross-Currency Swaps

Structured Derivative Products are instruments which come in a combination of two or more generic derivative products.

Any Other Product besides above, as permissible by RBI whether of generic or structured in nature from time to time

10.3.5 Stop Loss:

The firms risk management decisions are based on forecasts which are but estimates of reasonably unpredictable trends. It is imperative to have stop-loss arrangements in order to rescue the company if the forecasts turn-out wrong. For this, the critical levels in the exchange rates and interest rates will be determined at the time of hedging.

10.3.6 Reporting and Review:

Risk management policies are typically subjected to review based on periodic reporting. The reports mainly include profit / loss status on open contracts after marking to market, the actual exchange/interest rate achieved on each exposure and profitability vis-à-vis the benchmark and the expected changes in overall exposure due to forecasted exchange/ interest rate movement. The review analyses whether the benchmarks set are valid and effective in controlling the exposures, what the market trends are and finally whether the overall strategy is working or needs change.

The policy being the integral part of SJVN's Risk Management Policy will be reviewed as and when required due to the changes in the regulations / standards / best practices as appropriate.

10.4 Benchmarking Method

10.4.1 Transaction Specific Benchmark

SJVN will determine specific benchmark for its each foreign currency loan on the day on which the exposure is recognized, normally the date of drawl. Benchmark will be worked out on the basis of forward rate prevailing on the date of exposure for the date of maturity of the exposure and the risk appetite of the organization. Thus, a certain percentage towards risk retention will be added to the forward rate.

Illustration (USD/INR)

Sl. No.	Particulars	Date / Value
1	Date of exposure	1 st July 2013
2	Maturity date	1 st July 2018
3	Spot on 1 st July 2013	₹ 60.00
4	Premium Over Spot (POS) for five years	1.60 % per annum
5	Approximate cost for 5 years (1.60 x 5)	8.00 %
6	Approximate premium for 5 years	₹ 4.80

7	(3) + (6)	₹ 64.80
8	Add : Risk appetite per annum 1 % x 5	5.00 % i.e., ₹ 3.24
9	Benchmark	₹ 68.04

10.4.2 Benchmark for Interest Rate

For interest rate exposure, benchmark will be calculated as the rate of respective Interest Rate Swap (IRS) plus a risk appetite of 1.0 % per annum.

Illustration

Particulars	Date / Value
Date of exposure	1 st July 2013
Maturity date	30 th June 2018
LIBOR on 1 st July 2013	0.50 %
Five years IRS (say)	2.50 %
Add : Risk appetite	1.00 %
Benchmark	3.50 %

10.4.3 Review of Benchmark

Best efforts will be made to follow the benchmark rate and risk appetite as above. However, in case of an increase or decrease of hedging cost over the period of a loan, benchmark may be reviewed by the Finance Dept. with the approval of Director (F).

10.4.4 Hedge cost for exchange rate / POS

Hedge cost for exchange rate / Premium Over Spot (POS) will be based on the prevailing hedge cost to be considered along with the following factors :

- i) The gain / loss on account of difference between draw down rate and spot rate on the date of intended hedging
- ii) The gain on account of keeping the loan open i.e., without incurring any cost towards forward rate plus risk appetite.

Such savings and losses shall be considered along with the prevailing hedge cost for POS and if they are within the Benchmark, prevailing hedge cost can be considered, even if the same is higher than the benchmark rate.

10.4.5 Hedge cost for interest rate

Similar consideration shall be given to interest rate risk, as well as Forwards or any other currency risk management instruments.

10.5 Hedge Ratio

Hedge ratio will depend upon the prevailing market conditions, tenure of the loan, market trend, cost of hedging etc. accordingly, up-to 100% of the loan over the entire period of loan may be hedged with the approval of Director (F).The hedge ratio under different conditions will be as below :

(a) Rupee appreciating against a Foreign Currency (FC) with respect to benchmark fixed for hedging for exchange rate risk :

Sr. No.	Level of Appreciation	Hedge Ratio
1.	If FC/INR maturity forward rate appreciates by 10% over benchmark rate	Hedge up-to 20% of Loan
2.	If FC/INR maturity forward rate appreciates by 15% over benchmark rate	Hedge up-to 30 % of Loan
3	If FC/INR maturity forward rate appreciates by 20% over benchmark rate	Hedge up-to 50% of Loan
4.	If FC/INR maturity forward rate appreciates by 25% over benchmark rate	Hedge up-to 100% of Loan

(b) Rupee depreciating against a Foreign Currency (FC) with respect to benchmark fixed for hedging for exchange rate risk for a loan having residual maturity of 5 years or less :

Sr. No	Level of Depreciation	Hedge Ratio
1.	If FC/INR maturity forward rate breaches benchmark rate by 5%	Hedge up-to 10% of Loan
2.	If FC/INR maturity forward rate breaches benchmark rate by 10%	Hedge up-to 20% of Loan
3.	If FC/INR maturity forward rate breaches benchmark rate by 15%	Hedge up-to 30% of Loan
4.	If FC/INR maturity forward rate breaches benchmark rate by 20%	Hedge up-to 40% of Loan
5.	If FC/INR maturity forward rate breaches benchmark rate by 25%	Hedge up-to 50% of Loan

If however, FC/INR depreciates heavily by over 25%, further hedging may be considered.

(c) If however the foreign exchange market presents opportunities, whereby the hedging cost (exchange loss / gain plus swap cost/ forward premium) is 1 % p.a. or less, 25% of foreign currency liability may be hedged, irrespective of the residual maturity period.

- (d) In case of foreign currency liabilities due for redemption in the next 12 months, not less than 50% of liabilities may be hedged within 6 months. However, in case of floating rate liabilities, where interest amount cannot be determined because floating benchmark fixation is not known, hedging may be considered on estimate basis. This hedge ration is applicable to all foreign currency liabilities including cross currency liabilities, if any.

10.6 Operating Guidelines

Guidelines prescribe an outline of steps to be followed in finalizing a deal for hedging as under :

- i) A list of empanelled Banks or such approved entities, called Authorized Dealers (ADs), will be maintained by Finance & Accounts (F&A) Department (executing Dept.), New Delhi. One of the criteria for empanelment will be signing of ISDA (International Swaps and Derivatives Association) agreement by the ADs with SJVN.
- ii) Executing Dept. will send letter / fax / e-mail addressed to each empanelled Bank / entity specifying the details of loan / loans for which bids for hedging transaction are called-for, allowing a prescribed period for forwarding their quotes before the time indicated in the letter.
- iii) The quotes so received will be simultaneously entered in the comparative system designed for the purpose.
- iv) Since the rates offered by the ADs are based on real time ever-changing market rates, the successful lowest bidder will be awarded the proposed contract / deal immediately by letter / fax / e-mail.
- v) Based on comparative statement, executing Dept. would inform Director (F) about details of the contract and name of the AD to whom the contract has been awarded as post deal information. Director (F) sends the same back for execution of the documents.
- vi) Executing Dept. will execute the necessary documents relevant to the deal as above and will report the transactions undertaken during every half-year to the Board.

Executing Dept. may acquire a technology driven solution for decision making and smooth handling of the hedging activities.

Further, executing Dept. will fix a limit of maximum exposure with a particular Bank and authorize officials of the company to undertake hedging activities in terms of RBI guidelines / circulars.

10.7 General

10.7.1 Derivative – One of the Mitigation Measure

While derivatives can greatly facilitate risk management, significant care must be taken to design an appropriate hedging or insurance strategy for the project. First, the desired risk profile of the project must be agreed upon. For example, in some cases it may be desirable to use an insurance strategy which limits losses only below a certain point, rather than trying to eliminate all risk. Second, the credit risk of the counterparty must be appropriately assessed. Third, the liquidity risk of the contract being used must be considered. Customized derivative structures, while matching the desired risk management goals more closely, are likely to have lower liquidity in the market (and thus leading to higher transaction costs). Fourth, over-hedging (e.g., hedging price risk for a quantity which turns out to be more than what is actually produced) can actually introduce rather than reduce risk.

Thus, one must take care to determine variability in output, and consider this in designing the appropriate hedging strategy. In addition, as mentioned earlier, the correlation between different sources of risk in the project must be accurately estimated. Numerous cases have recently arisen where derivatives have met with disastrous consequences.

10.7.2 Disclosure and Accounting Policy

SJVN Hedging Policy will adhere to the norms of Generally Accepted Accounting Principles (GAAP), issued by the Accounting Standard Board (ASB) as Indian Accounting Standards (Ind. AS) or from any other Statutory Body applicable to Hedging, foreign Currency and Derivatives.

10.7.3 RBI Guidelines

RBI has issued Master Circular No. – 5/2013-14 dated July 1, 2013 with a sunset clause of one year. This will stand withdrawn on July 1, 2014 and would be replaced by an updated Master Circular on the subject.

Highlights of the circular are as follows :

- (a) Corporate can take positions in Interest Rate Swap or Currency Swap or Coupon Swap or Foreign Currency Options or Interest Rate Cap / Collar (purchase) or Forward Rate Agreements with authorized dealers in India to hedge their genuine underlying exposure.
- (b) The positions in derivatives should not exceed the underlying exposure. Thus, total outstanding derivative transactions (including hedging and trading transactions) should not exceed the value of the underlying.

- (c) The maturity of derivative should not exceed the maturity of the underlying.
- (d) There is no specific approval required from RBI as long as the transactions are within the ambit of RBI guidelines.
- (e) Corporate are not allowed for market making activity.
- (f) Authorized Dealers – Category I banks should ensure that the Board of Directors of the corporate has drawn up a risk management policy, laid down clear guidelines for concluding the transactions and institutionalized the arrangements for a periodical review of operations and annual audit of transactions to verify compliance with the regulations. The periodical review reports and annual audit report should be obtained from the concerned corporate by the AD Category I banks.
- (g) Market participants may follow only ISDA documentation.

RBI guidelines / circulars issued from time to time on Foreign Exchange Risk Management / Hedging will supersede provisions of this Policy.

11.0 Enterprise Risk Management (ERM) Technology

The need for professional risk managers and consultants to deliver low-cost, highly-valued risk management services to their customers in today's business world demands the use of technology to enhance their productivity and effectiveness.

While generally, it has been found that technology drives markets, the enterprise risk management discipline has evolved ahead of the technology needed to support it. Each enterprise and each risk is unique and has variable parameters.

The challenges of enterprise risk management can be met only with the right people and technology. While people are needed for expertise and process management, technology is required primarily for consistency, collaboration, and communication. Technology is expensive, especially if contracted on a consultation basis, and the right one need to be chosen. ERM calls for repetition in processes which can be delivered by technological solution. As software providers rise to meet the needs of the enterprises, companies are expected to benefit greatly from ERM technology as a cost saving solution. Reduced expense and implementation time thus, drives a technology based approach towards ERM.

One of the great challenges for risk managers is to develop integrated expertise. This is now possible with knowledge and research available at our fingertips. The marker for being knowledgeable and well informed has been moved to new horizons with the advent of the World Wide Web. The computer has unlocked the ability to do complex business risk analysis and develop risk-models which has never before been possible.

Enterprise Risk Management Technology must manage the complexity of an ERM program viz.

- 1) Root Cause : A framework that gets to the cause of issues and makes follow-up straight forward and logical.
- 2) Motivation : Performance Management functionality that makes it easy to help Line Mangers achieve process improvements to reduce costs, bottlenecks and unnecessary risk translates into their embracing risk management.
- 3) Process Driven : Selecting the most relevant key risk indicators for each core business process from thousands of possibilities.
- 4) Cross Functional Risk : Features to deliver a portfolio view with interactive dashboards to drill down or cut across silos to identify dependencies between risks.
- 5) Operational Controls : Go beyond financial controls to also quantify the effect of controls on business goal achievement while maintaining accountability throughout the process.
- 6) Risk Tolerance : Embedding risk management processes within the existing corporate culture from enterprise-wide Board room strategy to tactical planning and analysis.
- 7) Maturity Model : enable the Risk Management Cell itself to accelerate adoption of best practices, to set program objectives and measures and to manage ERM program activities.

Source

For immediate needs, the professional services solution route may be taken. Risk based approaches used in technology solutions have historically been delivered by the risk management information systems market. They have provided solutions primarily for purchasing insurance and managing claims. Many new tools, however, are being developed now, keeping the enterprise risk management requirements in mind.

Providers in the insurance, risk consulting, and accounting and audit industries outside the core risk management information systems market are also working on custom ERM solutions for clients.

The organization that takes time to properly evaluate and deploy one of the emerging technology tools in conjunction with, rather than after, the initiation of its ERM program will be the company that saves time, money and the consequences of not meeting the regulatory requirements.

Many organizations are also developing their in-house technologies. A few consulting companies and large corporations have actually designed customized ERM processes and tools. But these require costly and involved consulting engagements to uncover the information required for the systems.

ERM oriented tools tend to address electronic environment or other specific risk management disciplines. Integrated ERM tools covering all processes of the enterprise and also all elements of ERM (identification, measurement, management and monitoring) are not easily available.

A comprehensive technological solution, addressing key ERM processes in an integrated fashion, will take evolution through time. Such a system would require a platform accessible by many people across the organization, be expandable as the organization matures and enable collaboration and integration. The system must provide a level of automation beyond data input and recording and be adaptive to systemized business rules. It must support the diverse roles of stakeholders with customizable access and views in order to be relevant for administrators, resource providers, auditors, and others.

The system must also provide ease of use; support for the multiple needs of the broader organization; automations and adaptation of processes; a level of transparency; and the ability to provide a benchmark.

Economics, while pushing technological innovation by the principle of supply and demand, will also push enterprises to adopt ERM by the principle of competition.

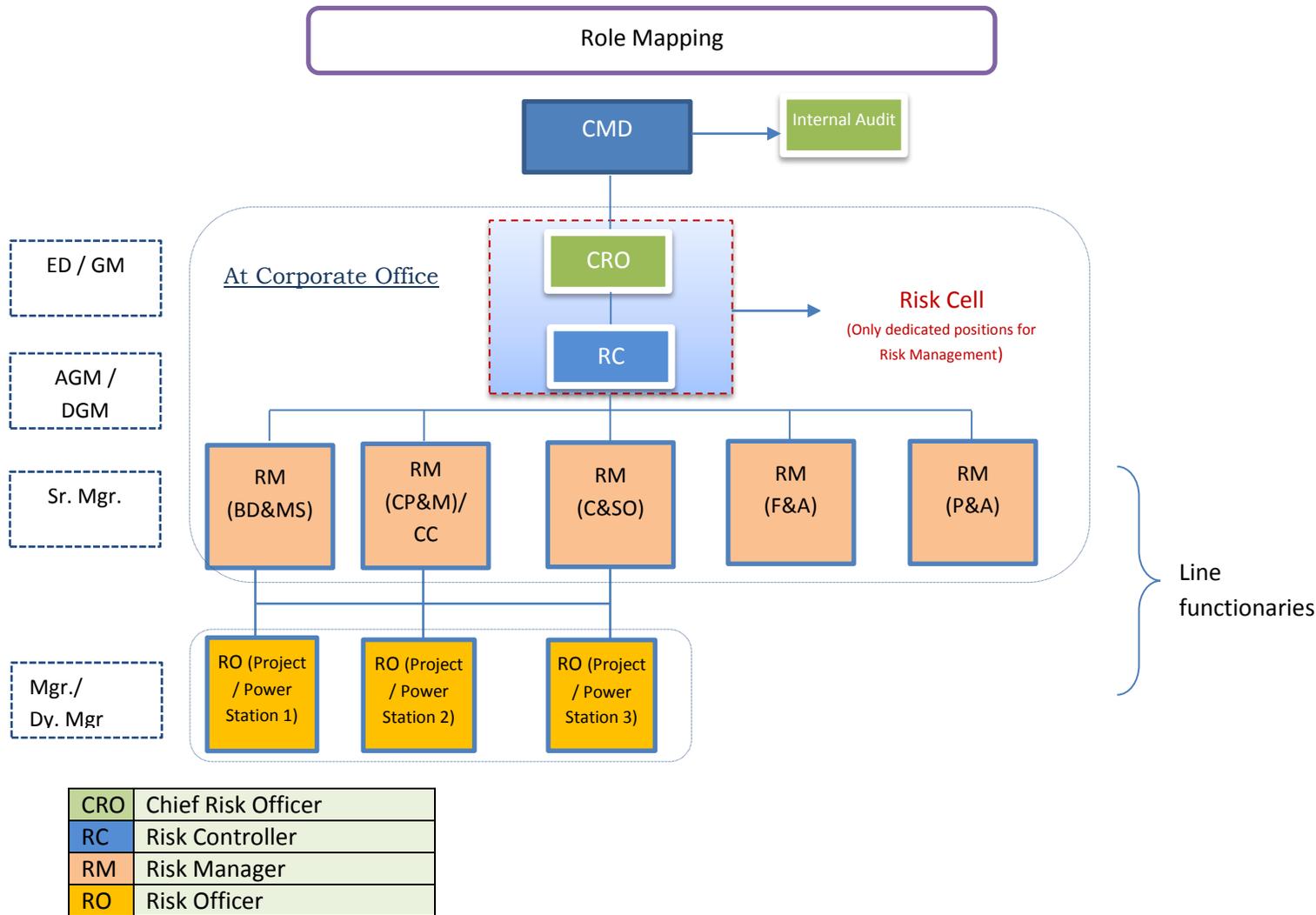
12.0 Risk Organization Structure

The Risk Management Policy will be implemented through the establishment of a Risk Organization Structure. At the core, a Risk Cell, reporting to CMD, comprising of the Chief Risk Officer (CRO) and the Risk Controller (RC) has to be formed (please refer to figure below). The CRO will have to be of the level of Executive Director / General Manager while the RC will have to be of the rank of Additional General Manager / Deputy General Manager. The Risk Managers (RM) and Risk Officers (RO) will be line functionaries, with cross-functional job descriptions – they will perform individual line duties, and also report to the Risk Cell. The RMs and ROs will therefore hold additional responsibilities for risk reporting beyond their line duties.

The overall monitoring of the Risk Cell will be done by the CMD. The Board will review the status and progress of the risks and risk management system on a regular basis through the Audit Committee.

All personnel forming a part of the Risk Organization Structure have to be trained on the Risk – Modeling and Management at a premier institute conducting such a course.

Following shall be the Risk Organization Structure for the company :



Note : 1. More RMs can be added from Departments at Corporate Office. CP&M / CC can be separated if required.

2. For the sake of clarity, line functionaries means executives performing individual line duties in their respective fields. However, with cross-functional job descriptions – they will also report to the Risk Cell.

12.1 Roles and Responsibilities

a) The Chairman & Managing Director (CMD) :

- i) Holding Ownership of the Risks with accountability and authority to manage risk
- ii) Ensuring that the Risk Management System is established, implemented and maintained in accordance with this Policy
- iii) Ensuring that controls are effective and efficient in both design and operation

- b) Chief Risk Officer :
- i) Determine strategic approach to Risks in terms of this Policy and set Risk Appetite
 - ii) Establish the structure of Risk Management
 - iii) Understand the most significant Risk
 - iv) Identifying emerging Risks
 - v) Obtain further information to improve risk assessment
 - vi) Analyzing and learning lessons from events (including near misses), changes, trends, successes and failures
 - vii) Measure Risk Management performance against indicators, which are periodically reviewed for appropriateness
 - viii) Periodically measure progress against, and deviation from, the Risk Management Plan
 - ix) Detecting changes in the external and internal context, including changes to risk criteria and the risk itself which can require revision of risk treatments and priorities
 - x) Report on Risk, progress with the Risk Management Plan and how well the Risk Management Policy is being followed
 - xi) Manage the organization in a crisis
- c) Assignment of responsibilities in relation to risk management will be the prerogative of the Chief Risk Officer.
- d) Risk Controller will be accountable to the Chief Risk Officer and will perform all his functions as have been assigned to him. The Risk Managers will report to the Risk Controller within their respective areas of responsibility.
- e) Risk Managers will be responsible for identification, assessment, aggregation, reporting and monitoring of the risk related to their respective areas and in accordance with the responsibilities assigned to them by CRO.
- f) Risk Officers will be responsible for identification, preliminary assessment, reporting and monitoring the risks related to their individual projects and in accordance with the responsibilities assigned to them by CRO. Their responsibility will further include
- i) Building risk aware culture within the units,
 - ii) Agreeing risk management performance targets
 - iii) Ensuring implementation of risk improvement recommendations and
 - iv) Identifying and reporting changed circumstances / risks

12.2 General

Enhanced risk management includes comprehensive, fully defined and fully accepted accountability for risks, controls and risk treatment tasks. Designated individuals fully accept accountability, are appropriately skilled and have adequate resources to check and improve controls, monitor risks and communicate effectively about risks and their

management to external and internal stakeholders.

This can be indicated by all employees of an organization being fully aware of the risks, controls and tasks for which they are accountable. Normally, this will be recorded in job descriptions, databases or information systems. The definition of risk management roles, accountabilities and responsibilities should be part of all the organization's induction programmes. Following will be the risk management responsibilities for every employees :

- i) Understand, accept and implement Risk Management processes
- ii) Report inefficient, unnecessary or unworkable controls
- iii) Report loss events and near-miss incidents
- iv) Co-operate with management on incident investigations

12.3 Risk Audit

Internal Audit Dept. will be the part of Risk Management organization structure. Management will ensure the arrangements in place to audit the efficiency and effectiveness of the controls in place for significant risks. Role of Internal Audit may include some or all of the following :

- i) Develop a risk based Internal Audit Programme
- ii) Focusing the internal audit work on the significant risks, as identified by management and auditing the risk management process across an organization
- iii) Receiving and providing assurance on the management of risk
- iv) Providing active support and involvement in the risk management process
- v) Facilitating risk identification / assessment and educating line staff in risk management and internal control
- vi) Report on the efficiency and effectiveness of internal controls
- vii) Coordinating risk reporting to the Audit Committee / Board

In determining the most appropriate role for the organization, Internal Audit should ensure that the professional requirements for independence and objectivity are not breached.

SJVN will ensure that those who are accountable are equipped to fulfill that role by providing them with the authority, time, training, resources and skills sufficient to assume their responsibilities.

13.0 Risk Management Information System (MIS)

Enterprise Risk Management (ERM) Technology will play a major role in implementing an enterprise-wide integrated Risk Management Information System (MIS). Currently risks are captured when the core group prepares project completion report wherein all the risks faced during the project life cycle are compiled. This report also capture the various delays happened on the project and the key reasons for the same.

However, such information is needed at all levels of the organization to identify, assess and respond to future occurrences of risk events. Pertinent information from both internal and external sources must be captured and shared in a form and timeframe that equips personnel to react quickly and efficiently. Effective communication would also involve the exchange of relevant data with external parties, such as customers, vendors, regulators and shareholders. Further, both historical and current data needs to be collected. Historical data tracks actual performance against target, identifies trends, correlate results and forecasts performance. Historical data also provides early warning signals concerning potential risk-related events. Current data gives management a real time view of risks inherent in a process, function or unit. This will enable the company to alter its activities as needed in keeping with its risk appetite.

SJVN needs to start preparing 'Risk Registers' as an immediate measure. The Risk Registers will be maintained at the level of Risk Manager / Risk Officer for capturing comprehensively all risks in operating power stations and projects under development or construction stage. Each risk will be identified, categorized and assessed using the methodology as specified in this policy or in accordance with the established norms in the industry.

Each Risk Manager would have access to risk registers of all Risk Officers under the span of control and would be responsible for monitoring them. Risk Controller would in turn monitor all risks at the Risk Manager level.

The 'Risk Register' should contain the following information:

- a) Description of the risk
- b) The impact, should the event actually occur
- c) A summary of the planned response, should the event occur
- d) A summary of the mitigation plan (i.e. the actions taken in advance to reduce the probability and/or impact of the event)
- e) The responsible Department / person

All the information mentioned above can be captured with the help of inputs covered under 'Risk Description' given in earlier section of the policy.

The structure of the MIS will be as follows :

Authority	Functional Dept. / Unit level	Reporting To	Risk Escalation
Audit Committee		Board of Director	For review and monitoring of the key Risks and the Risk Management System
↑			
Risk Owner		Audit Committee	To be escalated on the basis of need, impact level and exigency of situation
↑			
Risk Cell	Corporate	Risk Owner	To be escalated on the basis of need, impact level and exigency of situation
↑			
Risk Manager	BD & MS	Risk Cell	To be escalated on the basis of need , impact level and exigency of situation
	CP & M / CC	Risk Cell	To be escalated on the basis of need , impact level and exigency of situation
	C & SO / O&M	Risk Cell	To be escalated on the basis of need , impact level and exigency of situation
	F&A	Risk Cell	To be escalated on the basis of need , impact level and exigency of situation
	P&A	Risk Cell	To be escalated on the basis of need , impact level and exigency of situation
↑			
Risk Officer	Project / Power Station 1	Risk Manager	All the Risks are to be reported through risk registers
	Project / Power Station 2	Risk Manager	All the Risks are to be reported through risk registers
	Project / Power Station3	Risk Manager	All the Risks are to be reported through risk registers

13.1 Recording the Risk Management Process

Risk management activities must be traceable. In risk management process, records provide the foundation for improvement in methods and tools, as well as in the overall process. Decisions concerning the creation of records should take into account :

- The organization's need for continuous learning,
- Benefits of re-using information for management purposes,
- Costs and efforts involved in creating and maintaining records,
- Legal, regulatory and operational needs for records,
- Method of access, ease of retrieving and storage media,
- Retention Period, and
- Sensitivity of information

Records are back-bone of any Management Information System. However, they deserve greater significance in case of risks related documentation and must be managed on the principle of Risk Modeling under ERM Technology environment.

14.0 Risk Management Standard – ISO 31000 : 2009

Risk Management is a rapidly developing discipline and there are varied views and descriptions of what risk management involves, how it should be conducted and what it is for. Some form of standard is needed to ensure that there is an agreed :

- Terminology related to the words used
- Process by which risk management can be carried out
- Organization structure for risk management
- Objective of risk management

The global financial crisis in 2008 demonstrated the importance of adequate risk management. Since that time, new risk management standards have been published, including the International Standard ISO 31000 'Risk Management – Principles and Guidelines' in 2009. This provides a structured approach to implementing Enterprise Risk Management (ERM). At the same time, ISO also produced Guide 73 'Risk Management – Vocabulary – Guidelines for use in standards'.

Importantly, the standard recognizes that risk has both an upside and a downside. Risk management is not just something for corporations or public organizations, but for any activity whether short or long term. The benefits and opportunities should be viewed not just in the context of an activity but in relation to the many and varied stakeholder who can be effected.

There are many ways of achieving the objectives of risk management and it would be impossible to try to set them all out in a single document. Therefore, the Standard neither intended to produce prescriptive norms which would have led to a box ticking approach nor to establish a certifiable process. By meeting the various component parts of this standard, albeit in different ways, organizations will be in a position to report that they are in compliance. The standard represents best practice against which organizations can measure themselves.

In order to successfully implement, support and sustain the risk management process, a structure is required. ISO 31000 refers to this structure in the risk management context. ISO 31000 describes the components of a risk management implementation framework. It includes the essential steps in the implementation and ongoing support to the risk management process. The initial component of the ISO 31000 framework is 'mandate and commitment' by the Board and this is followed by :

- Design of framework
- Implement Risk Management
- Monitor and review framework
- Improve framework

ISO 31000 recognizes the importance of feedback by way of two mechanisms. These are monitoring and review of performance and communication and consultation.

SJVN Risk Management Policy has followed the underlying principles and ethos of guidelines issued by ISO 31000 to adopt best practices against which it can measure itself. This policy is however open to review to align itself with the best practices applicable to the industry.

15.0 Maintenance of the Risk Management System

The Risk Cell will be the key group which will work on an ongoing basis within the risk framework outlined in this policy to mitigate the risks to the Company's business as it may evolve over time.

Effective maintenance of the system will require the following actions:

1. Identification

- a) The Risk Cell, under the guidance of Chief Risk Officer (CRO), will meet periodically with the Risk Managers (RM) and Risk Officers (RO) to identify specific business risk and analyze the risk in terms of consequences, if the risk materializes.
- b) Among all the risks identified the Risk Cell will prioritize and focus on key risks and their mitigation measures.

2. Evaluation and Control

- a) Identified risks will be assessed in terms of potential consequences and cost of impact
- b) Risks will be ranked in accordance with their likely impact
- c) The acceptability of each identified risk will be assessed
- d) Proposed actions to eliminate, reduce or manage each material risk will be considered and agreed
- e) Responsibilities for the management of each risk will be assigned to appropriate managers

Based on a cost/benefit assessment of a risk, as is undertaken, some risks may be judged as having to be accepted because it is believed that mitigation is not possible or warranted.

3. Monitoring

As the risk exposure of any business may undergo change from time to time due to continuous changing environment, Risk Matrix will be updated on a regular basis. The following process will be followed:

On an immediate basis

Escalation of risks which have substantial impact to the business and meet determined escalation tolerance levels to the relevant Risk Manager or the Risk Cell

Quarterly

- The appointed Risk Managers will review the status of risks and treatment actions with key staff in their respective areas
- Any new or changed risks will be identified and escalated, if deemed necessary
- The appointed Risk Manager of each area will report to the Risk Cell
- Particular emphasis is to be given to risks with high ratings and their corrective actions

Annually

- The Risk Cell will report its collective findings through Risk Owner and Audit Committee annually
- The risk contexts for each project are reviewed
- The Risk Management Plan is subjected to annual audit by the Internal Auditor

Everyone in the organization is responsible for the effective management of risk. All staff is responsible for identifying potential risks. Management is responsible for developing risk mitigation plans and implementing of risk reduction strategies. The risk management process will be integrated with other planning processes and management activities.

15.1 Review of the Policy

Risk management is viewed as central to the organization's management processes, such that risks are considered in terms of effect of uncertainty on objectives. The governance structure and process are based on the management of risks. Effective risk management is regarded by managers as essential for achievement of the organization's objectives.

The policy, being dynamic in nature, will be a guiding document for risk management at SJVN and will be reviewed as and when required.