

Hydropower Project Financing and Foreign Direct Investor's requirements for Prudent Risk Management in Nepal

Hydropower Financing & Risk Management Workshop

Kathmandu, Nepal

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Presented by:

Dr. Sandip Shah

Managing Director, Dolma Himalayan Energy



Dolma Himalayan Energy

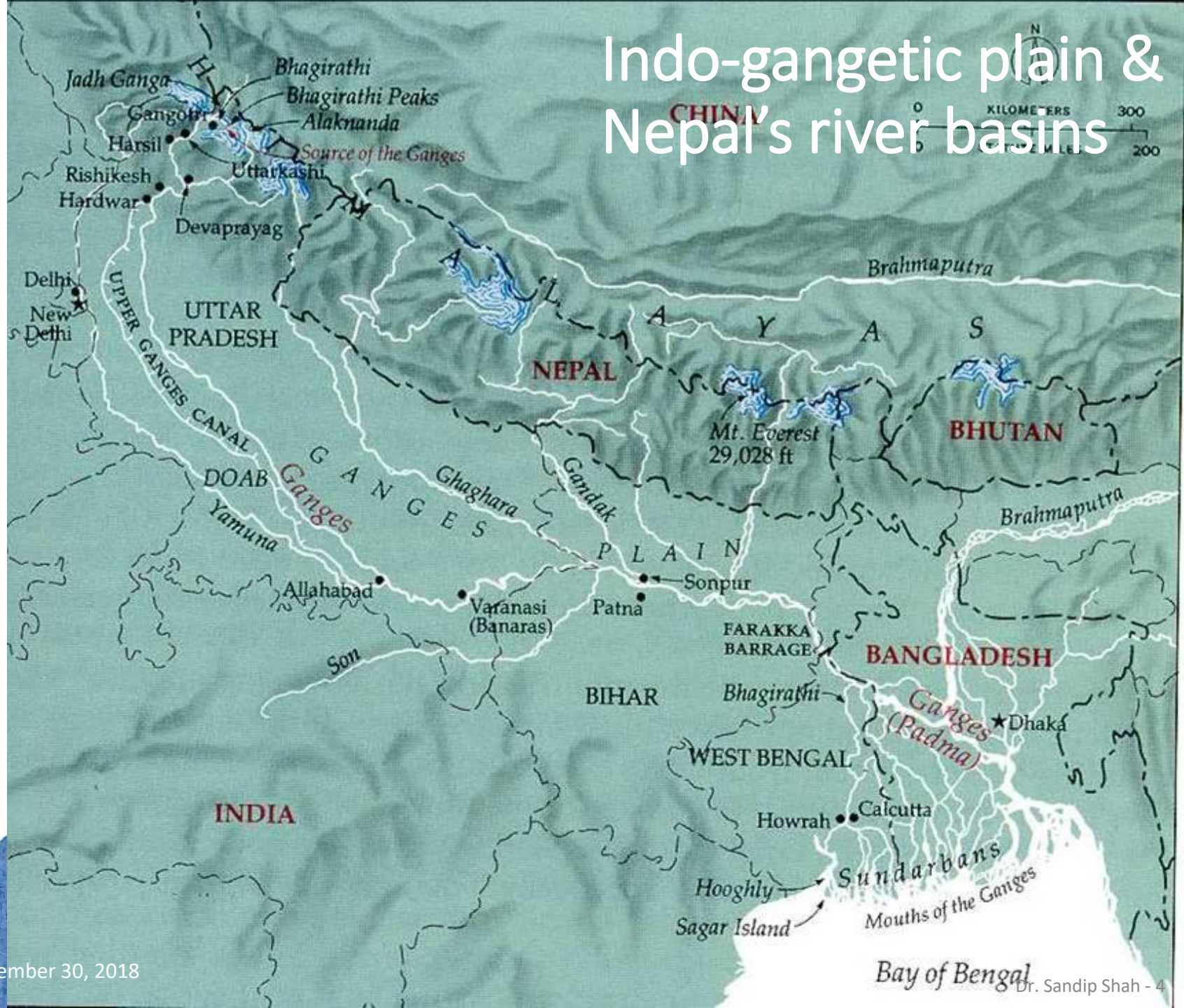
- Dolma Himalayan Energy (DHE) is a renewable energy developer focused on solar and battery developments in the Himalayan region for Peak Energy Management (PEMa) in Integrated Nepal Power System (INPS)
- Himalayas are the highest solar radiation region on earth.
- DHE has received licenses from Investment Board Nepal (IBN) to develop up to 150 MW PV + 80 MWh of battery storage system with further expansion possible up to 850 MW PV and 100 MWh of battery storage.
- Nepal targets an additional 9,000 MW from renewables (solar, hydro, wind) by 2026 requiring >USD 15 BN of FDI



Agenda

- Background
- Hydropower development process in Nepal & associated risks
- Risks and Risk Mitigation
- Special risks for FDIs

Indo-gangetic plain & Nepal's river basins



Sustainable Power Sector Development

- Objectives of Nepal's Power-sector reform program – *Hydropower Development Policy 2001*
- Reducing Electricity costs
 - Attracting private investment
 - Maximize public revenues
 - Creating energy security in an environmentally and socially sustainable manner
 - Optimizing power plants with possibilities of exports

Benefits of FDI

- Precious, new money to country
- Technology transfer
- Promotes local industry
- Provides opportunity for small and large contractors to gain knowledge and earn money
- Taxes, royalties and revenue to GoN & local governing bodies
- Funds for community projects – CSR
- Demonstration of environmentally and socially responsible development
- Employment and training for technical staff
- Reducing burden on GoN
- More efficient form of development process
- Support to economy at micro, macro and national level

Barriers to Investment

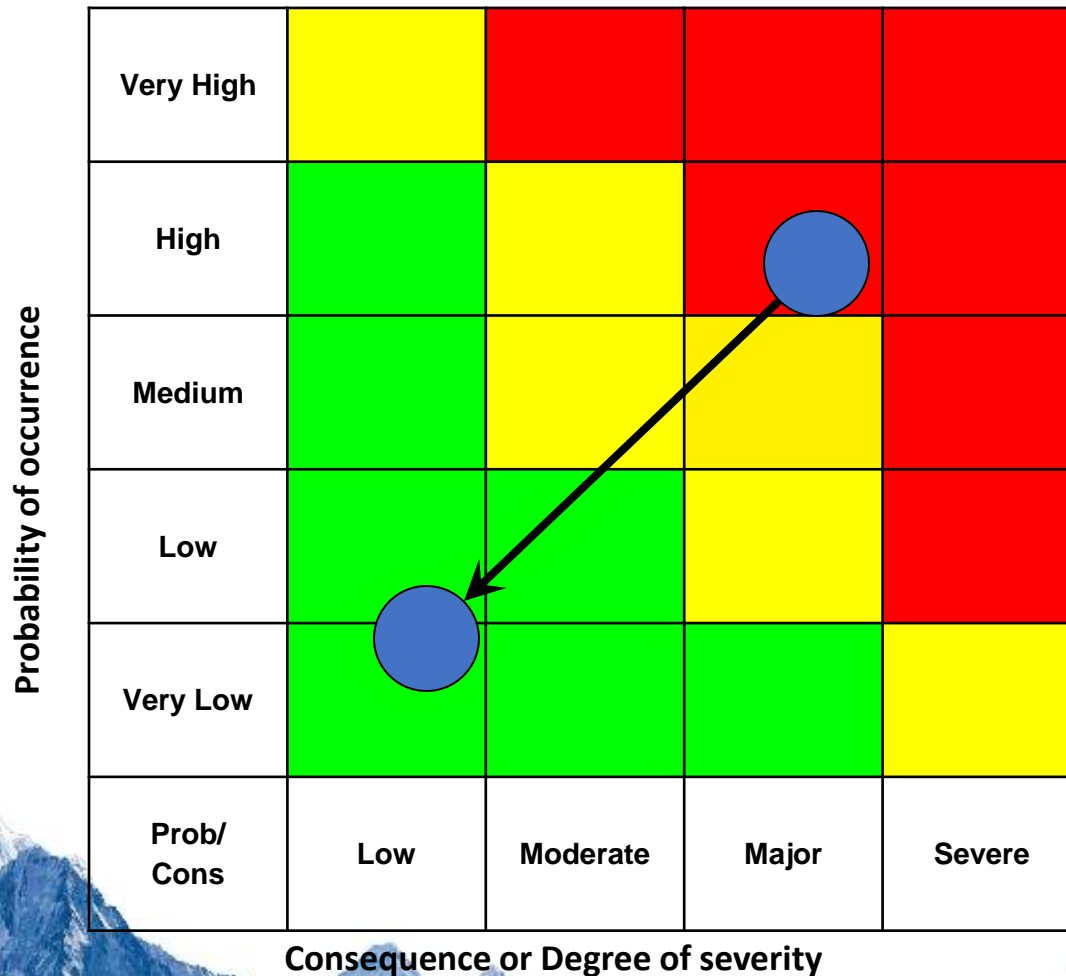
- Lack of Political Stability
- Policy Stability
- Legal and Regulatory Framework
- Geopolitics of Region
- Security – physical & investment
- Institutional Setup
- “Single-Window” Policy
- Market for generated power
- Power Evacuation
- Contractual/Commercial Aspects
- Level Playing field for IPPs
- Financing
- Payment Guarantees
- Power Market



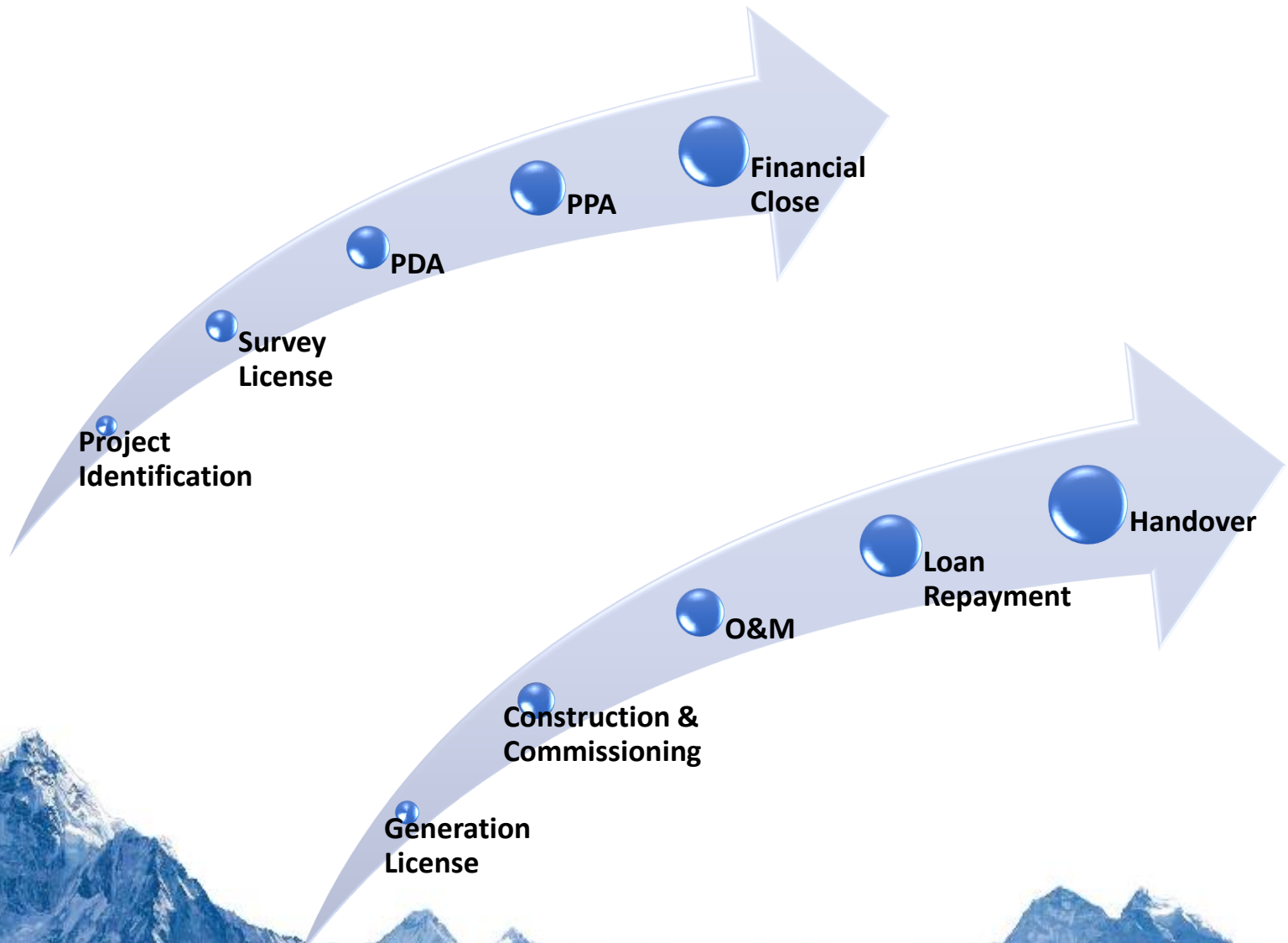
Nepal is still not on the investment map of the World!!!

Risk Management for Projects

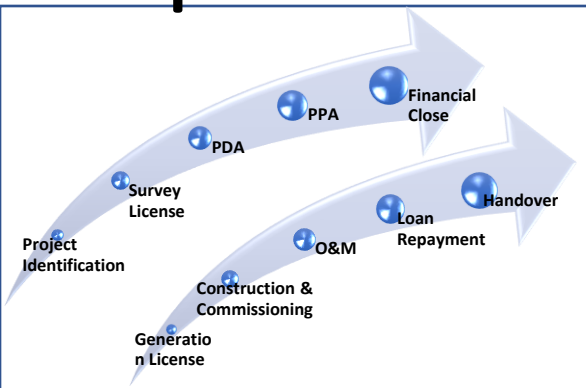
Risk = Probability of occurrence x Consequence of occurrence



Hydropower Project Development Process



Activities, Risks & Responsibilities



Survey License

- Application in required format
- Fees (changing)
- 5-year max. and annual renewal
- Sufficient progress

Risks:

- Non-renewal
- Two-stage license process
- Change in fees
- New conditions

All risks on sponsor!

No guarantee on IPR

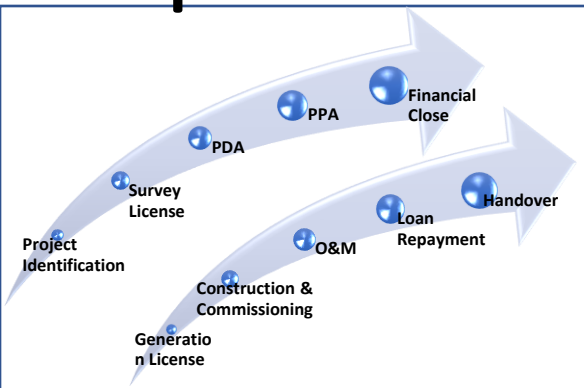


Project Identification

- Field & desk studies
- Concept Note
- Recommendation of DWRC

All risks on sponsor!

Activities, Risks & Responsibilities



PDA

Why PDA?

- Define Framework of Project Development
- Tenure of License
- Tax incentives
- Permits and Licenses
- Obligations of Developer
- Obligations of Government
- PPA – guarantees
- CEN – guarantees
- Conversion, repatriation
- Change-in-law Protection
- Dispute Resolution Mechanism
- Force Majeure conditions

PPA

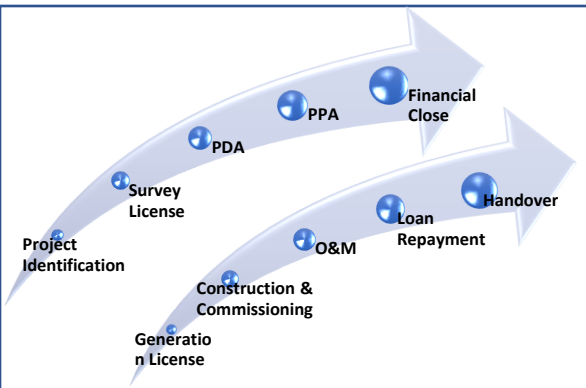
Why PPA?

- Lenders and sponsors requirement
- Not required if market mechanisms exist
- Secure cash flow requirements
- Define technical and commercial terms for power supply
- Define dispute resolution mechanisms

Main risks on sponsor! Some risks to off-taker.

Fair and equitable sharing of risks!

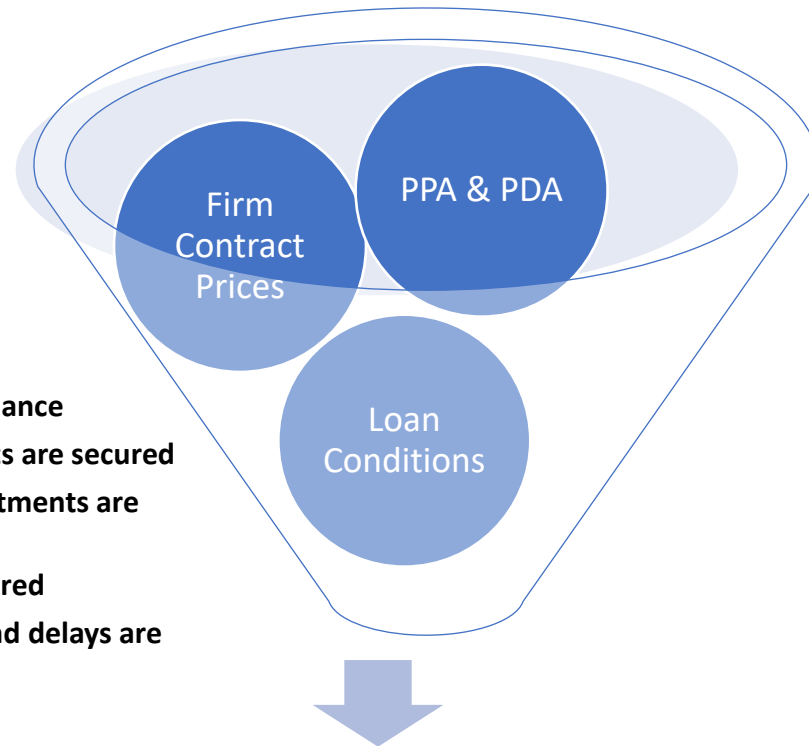
Financial Close



Why Financial Close?

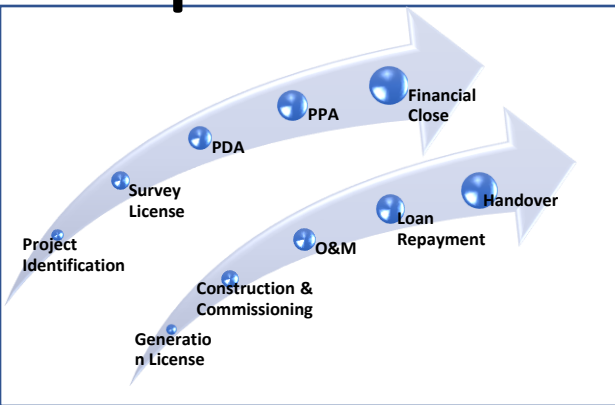
- All project parameters are secured
- Terms and conditions for project finance
- Lenders and sponsors commitments are secured
- Off-taker and Government commitments are secured
- Contractors commitments are secured
- Responsibility for cost over-runs and delays are secured.
- Contingent equity

Main risks on sponsors and lenders!



Financial Close

Activities, Risks & Responsibilities



Construction & Commissioning

- Land acquisition
- Permitting & Licensing
- Taxes and duties
- Labor issues
- Skilled technicians
- Material supplies
- Geological and hydrological challenges
- Local expectations
- Cost overruns and time delays
- Funding of cost overruns and delays

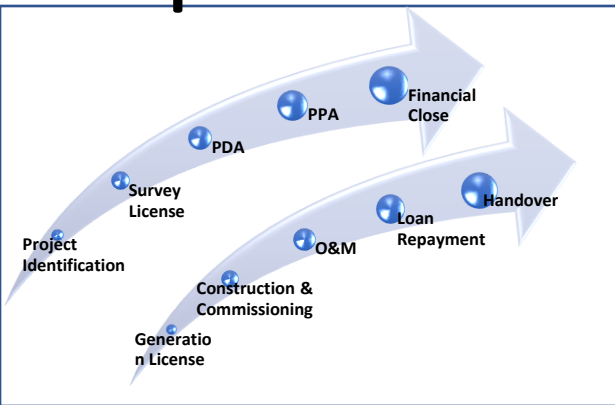
Generation License

- To secure terms of project development

Main risks on sponsor! Some risks on Government.

**All risks on sponsor and to lenders!
Government's role to facilitate.**

Activities, Risks & Responsibilities



Handover

- In proper operating condition
- Onus is on project to fulfil conditions
- GoN's expectations have to be reasonable

Loan Repayment/ Debt Servicing

- Timely payments to lenders
- Managing reserve requirement
- Managing proper insurance
- Fulfilling loan covenants

Major risks on sponsor and to lenders!

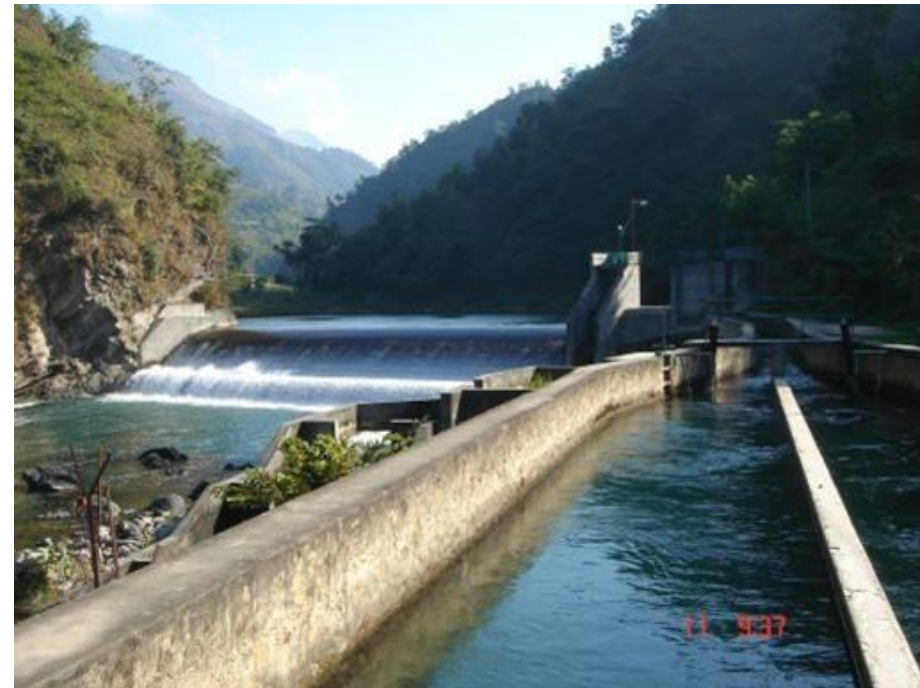
O&M

- Proper O&M practices
- Sediment handling
- PPA administration
- PDA administration

Main risks on project! Some risks on off-taker.

Risks for Hydro Project Development

- **Technical Risks:**
 - Hydrological
 - Geological & Geotechnical
 - Floods
 - GLOF, flash floods
 - Construction Risks:
 - Delays
 - Strikes
 - Flooding
 - Operational Risks:
 - Equipment
 - Sediment
 - River Flows
 - Power Evacuation Risk
 - Congestion
 - ROW
 - Cascade development of Projects



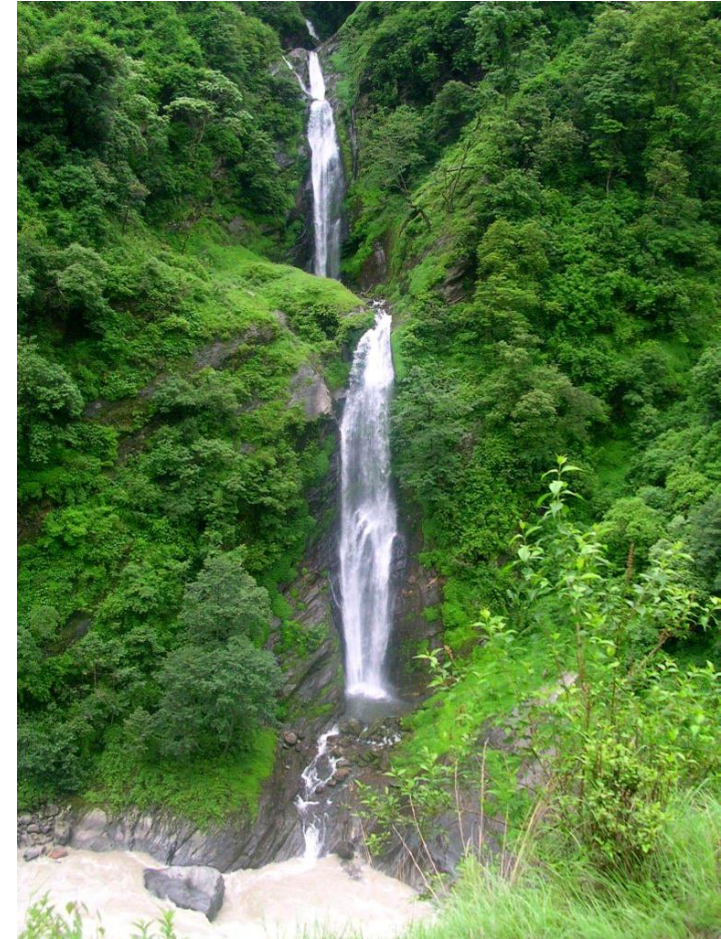
Risks for Hydro Project Development *(contd.)*

- **Government Risks:**

- Country Risk
- Political Risk - CEN
- Policy Risk
- Legal & Regulatory framework
- Sanctity of Contracts
- Security of Site & Investment
- Labor Law

- **Financial Risks:**

- Payment Risk
 - Credibility of buyer
 - Payment security guarantees
- Foreign Exchange Risk
- Currency Conversion & Repatriation



Risks for Hydro Project Development *(contd.)*

- **Environmental & Social Risks**

- Environmental friendly and socially acceptable development
- Indigenous communities
- Endangered species
- R&R issues
- Proper ESMP
- Monitoring
- Residual Risk

- **Reputational Risk**

- Partners
- Corruption
- Land acquisition
- Permits & Licenses



Risk Assessment

- For every risk, there is an associated Return!!!
- Perception of Risk
- Weightage to different risk elements
- Management / Mitigation of Risks
 - Measures to alleviate the risk
 - Structural Improvements/ changes – increased reliability
 - Fire protection systems
 - Early Warning Systems
 - Emergency procedures
 - Security arrangements
 - Comprehensive CSR Program
 - Insure against the risk
 - Insurable risks
 - Non-insurable risks

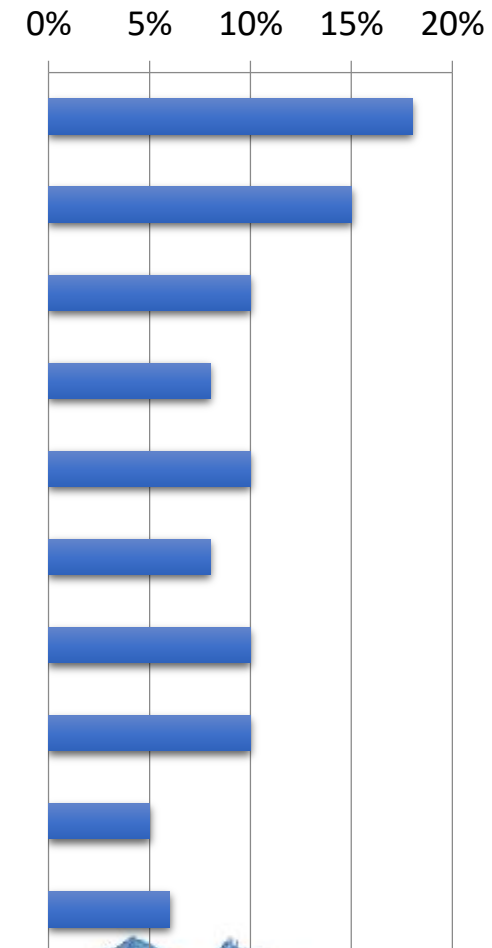


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Risk Analysis –

Personal Assessment

Risk Type	Risk Weightage	
	Mean	Std. Dev.
Hydrological & Sediment	18%	±5%
Geological/Geotechnical	15%	±5%
Construction	10%	±4%
Political/Policy	8%	±2%
Payment – contract sanctity	10%	±5%
Currency Exchange Risk	10%	±2%
Security	10%	±4%
CEN	10%	±4%
Power Evacuation	5%	±3%
Environmental & Social, etc.	6%	±4%
Total Risk	100%	



Some Typical Risks *for FDI and others*

- *Cost overrun – QRA*
- *Time delays – SRA*
- *Quality Assurance – PoE*
- *Power evacuation – a showstopper?*
- *Finance – debt and equity*
- *Labor availability*
 - *Technical & non-technical*
- *Qualified and experienced contractors*
- *Contract Interface Management vs. EPC*
- *E&S compliance – reputational issues*
- *Federal structure – unclear tax, duties, octroi regime*
- *FX Risk*
 - *Hedging Mechanism*
- *Repatriation*
 - *Every invoice, dividend payout has to be approved by NRB*
- *Exit possibilities*

Risk should be allocated to entity which can best manage it!

- Prepare Risk Register, update regularly, assign risk managers
- Hydrology & Geology –
 - Probabilistic approach P_{50} to P_{90}
 - Geotechnical Baseline Report
- Construction –
 - Detailed construction planning, CAR
 - Cost overrun & Time delay – QRA, SRA
- Political – MIGA
- Currency –
 - TCX, Hedging fund
- O&M
 - Good O&M contractor and practices
 - Business Interruption, PD, ALOP, Third Party
- HSE and ERP
- Cascade Management Committee

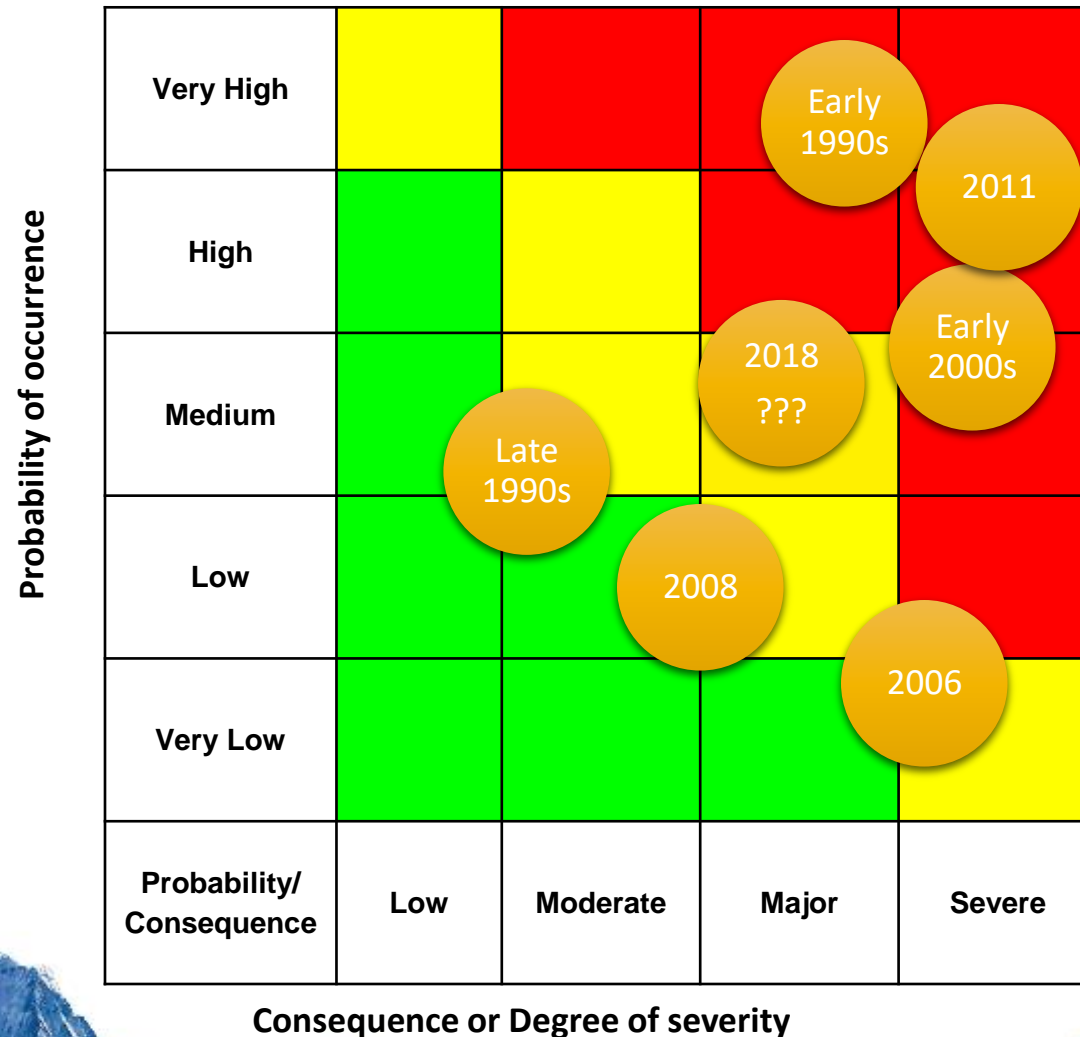
Experiences of FDIs

- Hand-holding by GoN
 - Custom clearance
 - Business Visas
 - Permits and approvals
 - FDI approvals
 - Institutional complexity
 - Land acquisition
 - Security
 - Site Inspection, Technical and E&S compliance and monitoring, Certification
 - Local taxes, duty and octroi
 - Understanding of Change-in-Law Protection

Experiences of FDIs (*contd.*)

- Hand-holding by GoN
 - Adhoc changes in rules and regulations – increases cost of transactions
 - Forestry approvals and tree-cutting permits
 - Managing Local Expectations
 - Force Majeure Events – adverse geology, floods
 - PPA as a part of PDA
 - Conversion and Repatriation
 - Sanctity of Contracts
 - Public Issue of Shares
 - At Handover

Investment Environment in Nepal



Thank you!