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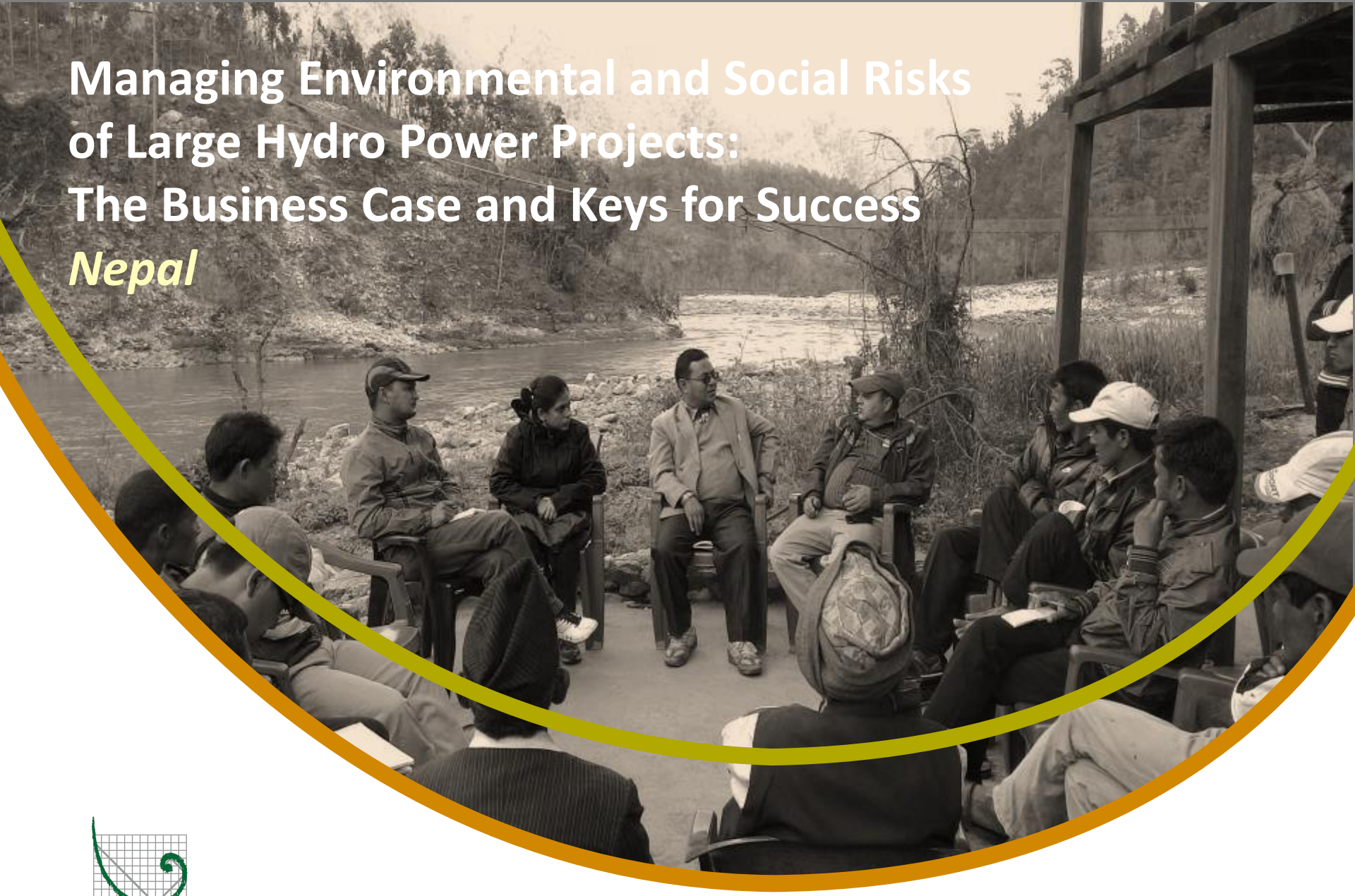
Managing Environmental and Social Risks of Large Hydro Power Projects: The Business Case and Keys for Success

Nepal



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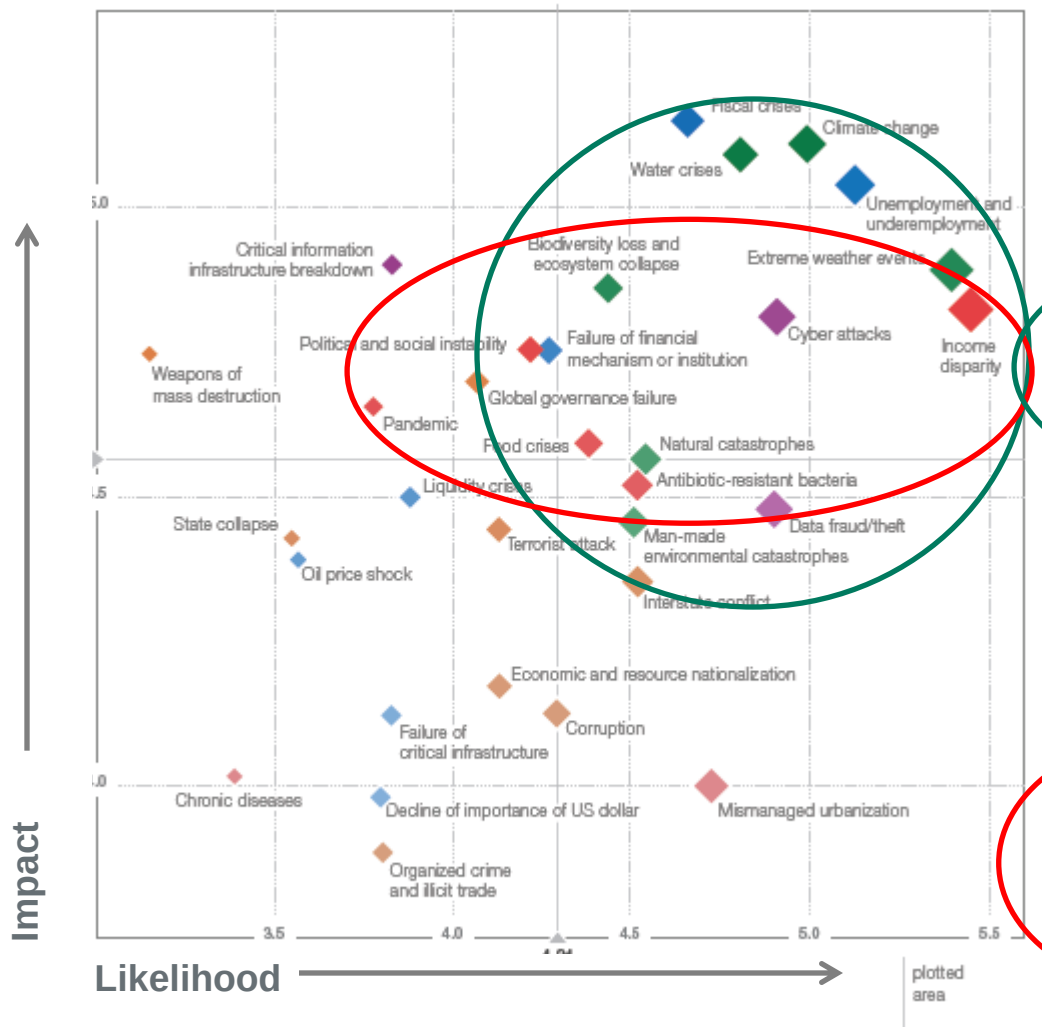
Concern over E&S Risk is Growing



Economic Risks

Fiscal crises
Failure of financial mechanism or institution
Liquidity crises
Unemployment and underemployment
Oil price shock
Failure of critical infrastructure
Decline of importance of US dollar

Environmental Risks

Extreme weather events
Natural catastrophes
Man-made environmental catastrophes
Biodiversity loss and ecosystem collapse
Water crises
Climate change

Geopolitical Risks

Global governance failure
State collapse
Corruption
Organized crime and illicit trade
Terrorist attack
Weapons of mass destruction
Interstate conflict
Economic and resource nationalization

Societal Risks

Food crises
Pandemic
Chronic diseases
Income disparity
Antibiotic-resistant bacteria
Mismanaged urbanization
Political and social instability

Technological Risks

Critical information infrastructure breakdown
Cyber attacks
Data fraud/theft

Source: World Economic Forum, Global Risks, 9th Edition, 2014

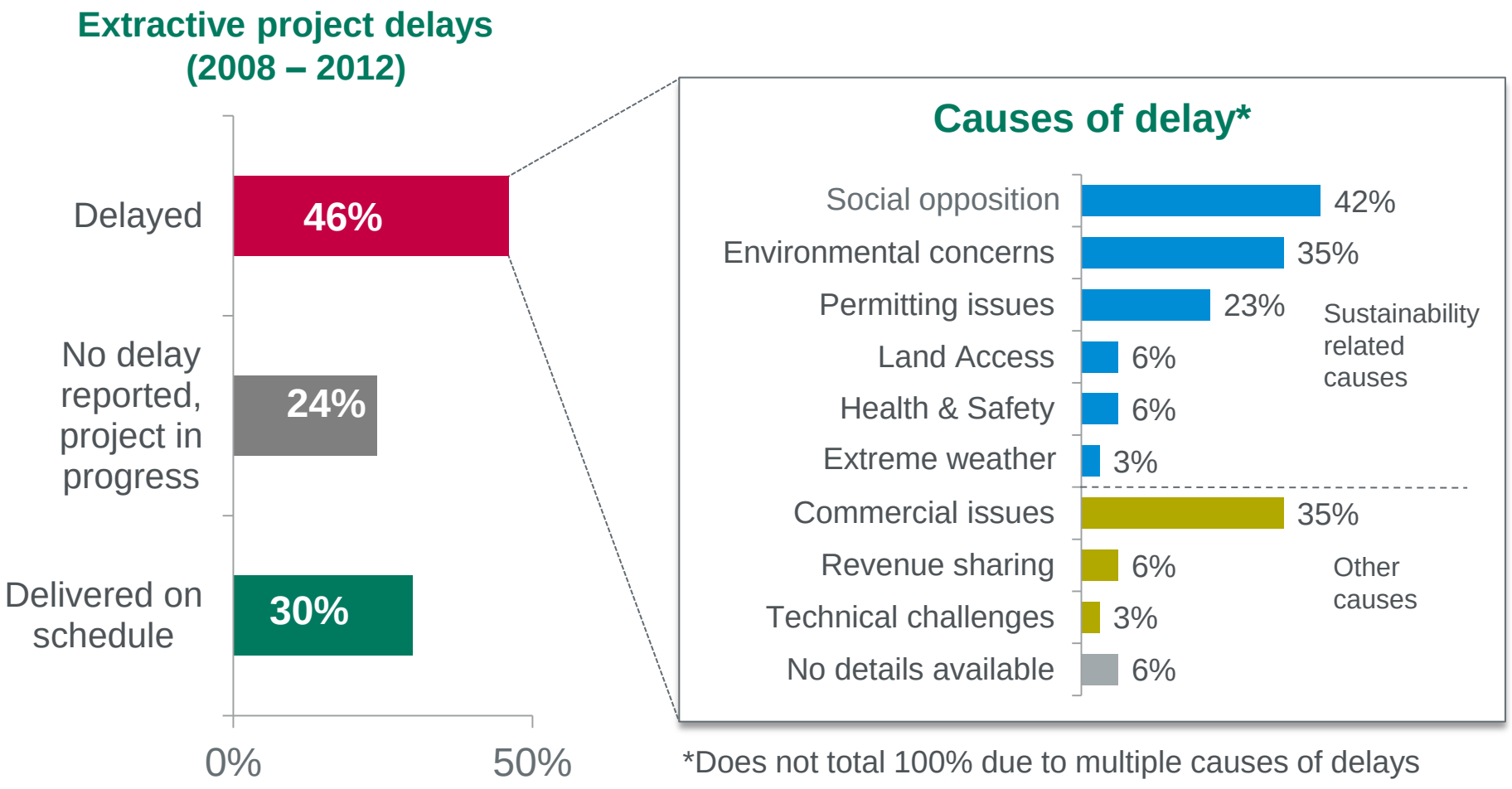
Setting the scene – Increased NGO attention

- Increased scrutiny/NGO/Civil Society
- Local & International NGOs
- Protests e.g. invasion of AGMs
- Direct action

Setting the scene – media awareness and speed

- Use of social media/internet platforms, can increase the speed of dissemination of allegations of environmental/social mismanagement (and leaks) and garner support.
- Globalised media further propels this.

Most Projects are Delayed



Sample size = 67 projects.
Projects >$500m CAPEX reported on between 2008-2012

Source: ERM Analysis

E&S Risks Affect Developers then Banks

Issues

- Resettlement / land acquisition
- Biodiversity
- Community Unrest
- Pollution
- Water scarcity
- Child labour/forced labour

Risks for Developers

- Reputational risk
- Project delays and/or loss of government approval
- Additional development costs
- “License to operate” compromised (operational shutdowns)
- Financial risk (difficulty in raising capital, legal fees, fines, vandalism)

Bank risk

- Reputational risk
- Non-performing loans/investments
- Regulatory repercussions
- Breach of own “standards and ethics”
- Need to provide/find additional debt

IFC Performance Standards (January 2012)

IFC International Finance Corporation
World Bank Group

Keys for Success in Managing E&S Risks

Environmental and Social Management System – need to implement a robust system from project start

Manage Social Risks – establish grievance mechanism, share benefits, make sure people are better off

Stakeholder Engagement – engage with local communities to gain trust, build broad community support, secure the social license to operate

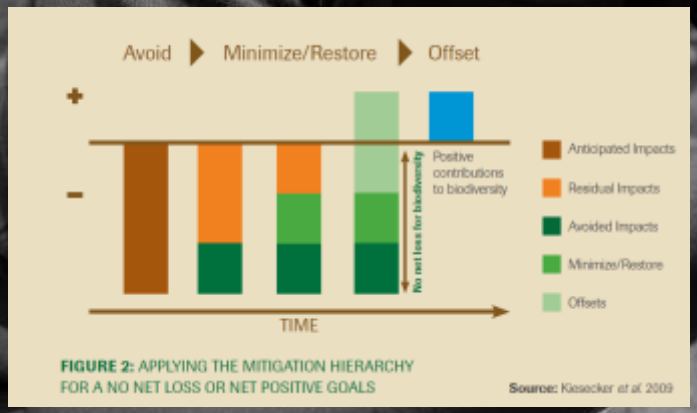
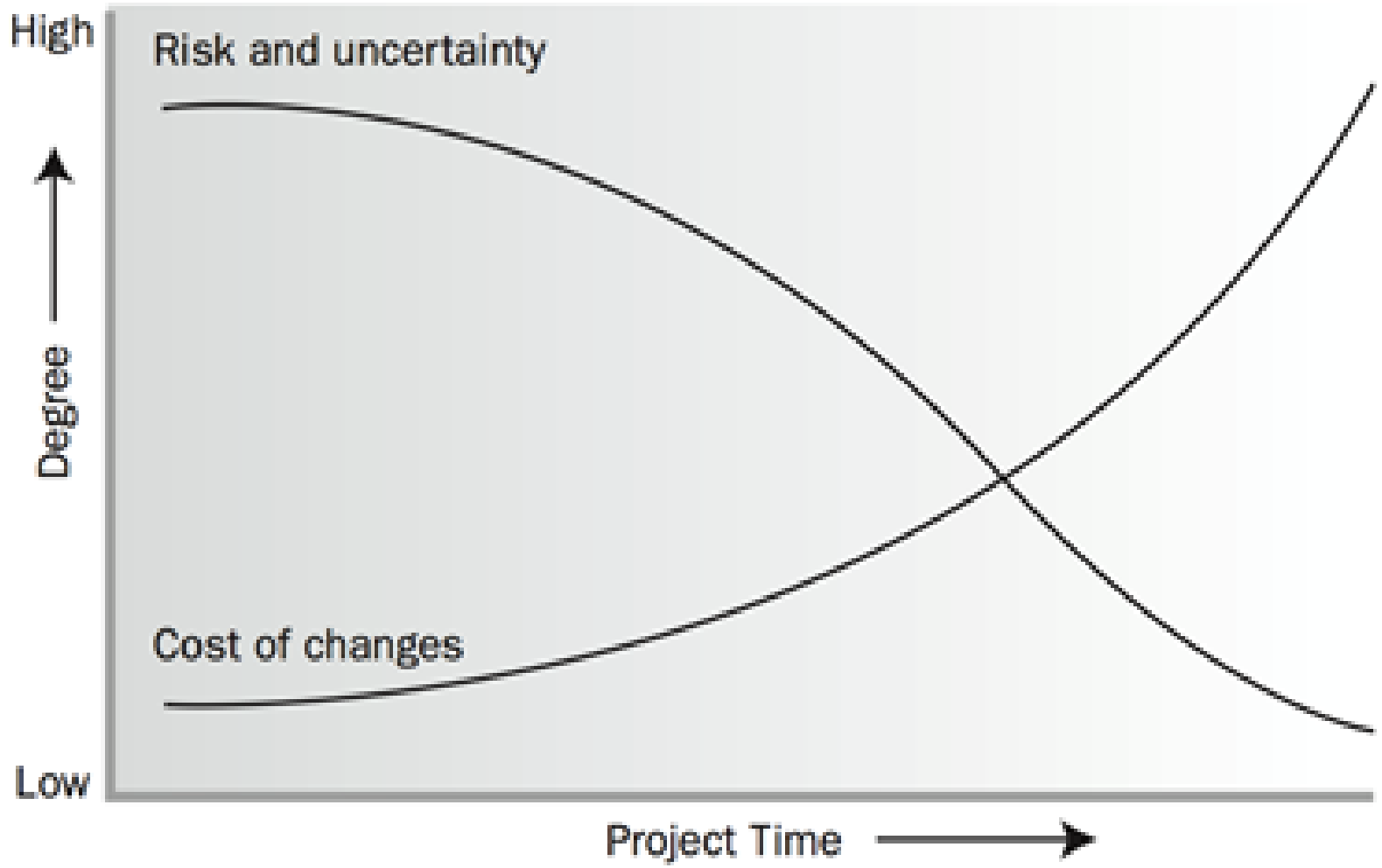


FIGURE 2: APPLYING THE MITIGATION HIERARCHY FOR A NO NET LOSS OR NET POSITIVE GOALS

Source: Kiesecker *et al.* 2009

Keys for Success in Managing E&S Risks

- Close coordination with the engineers - don't let the engineers get too far ahead (or too far behind) the ESIA



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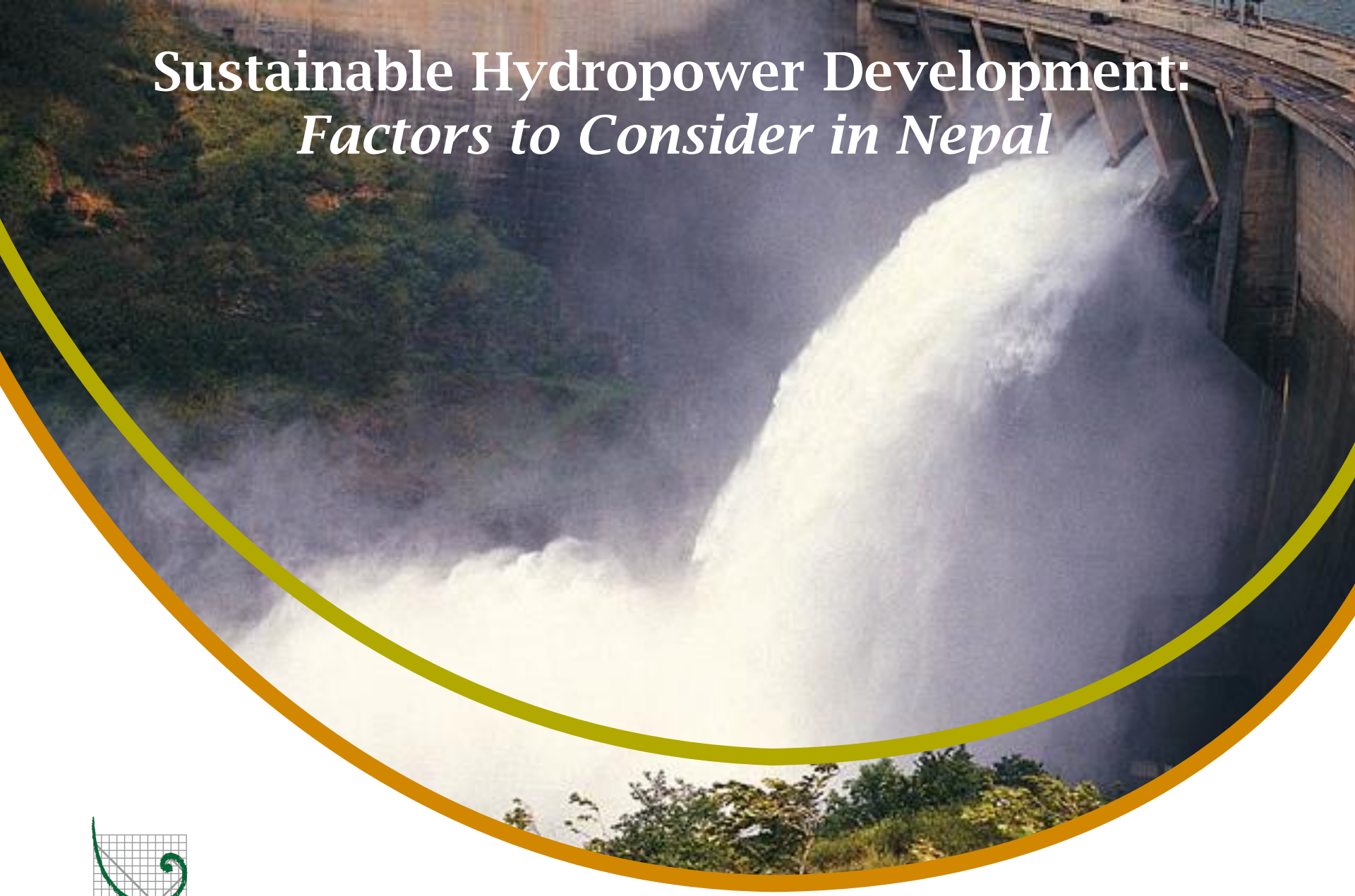
Sustainable Hydropower Development:
Factors to Consider in Nepal



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Sustainable Hydropower

Pick the Right Location

Landscape Position Important

- Upper tributaries are generally preferred over main stem sites
- Consider cumulative impacts

Consider Environmental Receptors

- Presence of migratory, endangered, and endemic species, protected areas, IFC critical habitat

Consider Social Receptors

- Potential resettlement, recreation uses
- Community resource uses

Metrics to Consider

- Hectares inundated/MW of installed capacity
- People displaced/MW of installed capacity
- Length of bypass reach
- Useful reservoir life

Sustainable Hydropower

Get a Good Baseline

Hydrology

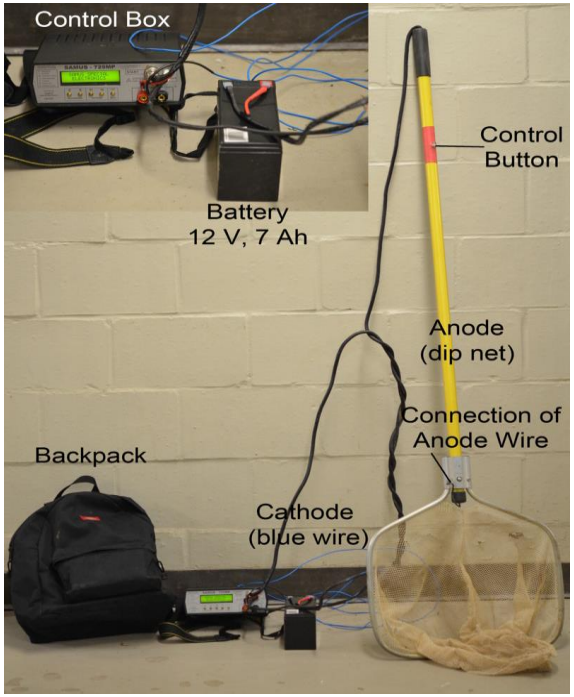
- Collect as much flow data as you can

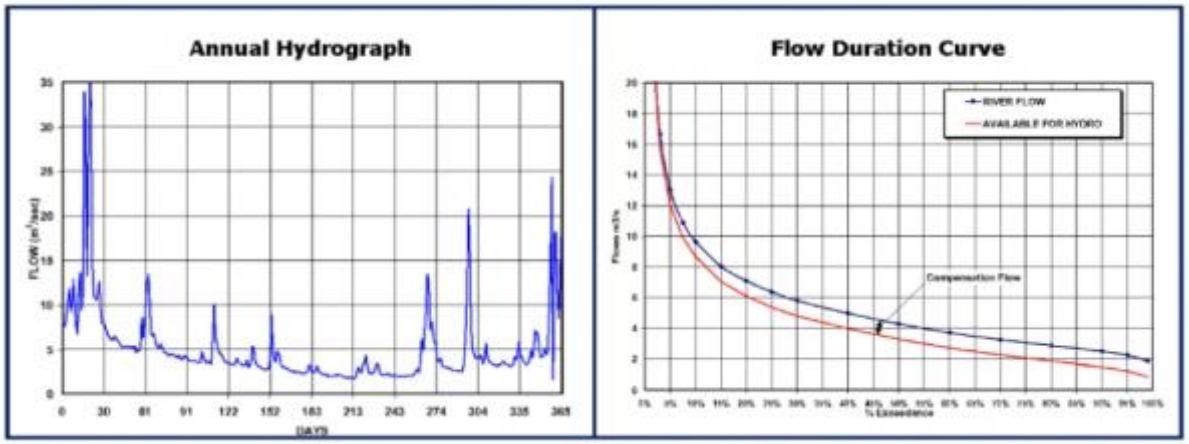
Aquatic Ecology

- Consider when, where, how, & what to sample

Social Water Uses

- Recreation, irrigation, cultural/religious, potable, commercial and subsistence fisheries
- Seasonality



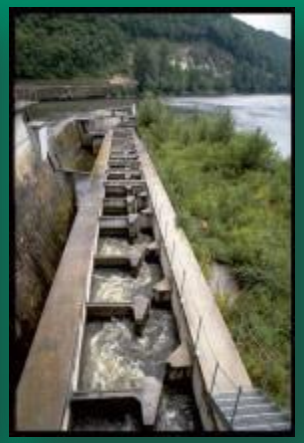


For Nepal especially consider:

- Cumulative issues
- Earthquake risks
- Varied land ownership and use patterns
- Livelihood dependence on rivers
- Cultural significance of rivers

Sustainable Hydropower

Design it Right



Pick the Right Operating Regime

- ROR/peaking/store and release/pumped storage

Provide Adequate Downstream Flows

- Evaluate both below dam and below powerhouse
- Consider other water uses/users
- Take a holistic approach

Minimize Effects on Fish Habitat

- Provide fish passage if needed
- Provide ramping rates if peaking

Effects on Water Quality

- Eutrophication, DO, T°
- Residence time/point of water release

Sustainable Hydropower

Engage and Communiciate

Engage Early and regularly

- Don't just engage when the law asks you to.

Disclose information

- People want to know what's happening
- They want to understand impacts and plan accordingly.

Tailor your communication to make it locally understandable

- Enable people to participate and engage

Seek consensus where possible

- Its not a one time exercise.
- Get people to co-own the decisions

Sustainable Hydropower

Develop Skills and prepare employable youth

Set up a good database

Identify and reach out to local unemployed youth

Focus on outcomes

Generate local area development

Identify needs

Focus on livelihoods

Seek convergence with government initiatives and programmes

Share profits where possible

Shares

Local Funds

Understand the risks of such options. Look long term

Demonstrate the impacts through impact evaluation

Identify indicators

Monitor and record data

Capture qualitative as well as quantitate impacts

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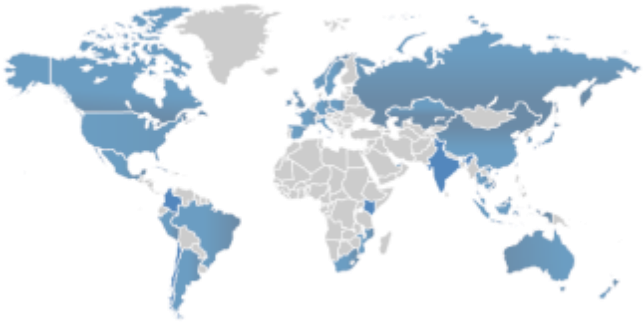
FORTUNE 500

We have worked in over **160** countries in the past 3 years



Sean Purdie
APAC Managing Partner-Power
ERM
sean.purdie@erm.com

Neena Singh
Partner – Impact Assessment & Planning
ERM
neena.singh@erm.com

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