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Country Safeguard Systems Sub-regional Workshop

Cumulative Impact Assessment

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Tbilisi, Georgia
May 2016



Hagler Bailly Pakistan



Cumulative Impacts

“The environmental and social impacts that result from the incremental impacts of one action/activity when added to past, present, and reasonably foreseeable future actions/activities.”

“death by a thousand cuts”



ESIA vs CIA

Basic Conceptual Assessment Paradigm Change.

1. Focus: Project Impacts vs Condition of **Valued Environmental and Social Components (VECs)***.
2. Scope: Expanded spatial and temporal boundaries for the analysis.

* VECs are environmental and social attributes that are considered to be important in assessing risks; they may be physical, ecosystem services, natural processes, social conditions, cultural aspects.



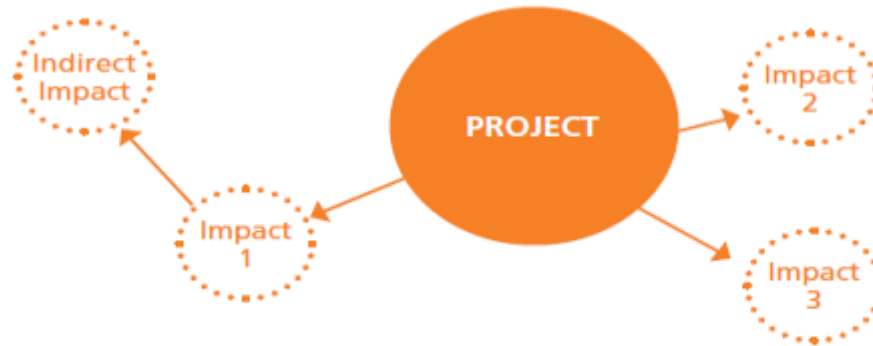
Valued Environmental and Social Components (VECs)

Sensitive environmental or social receptors, affected resources, ecosystems, or communities

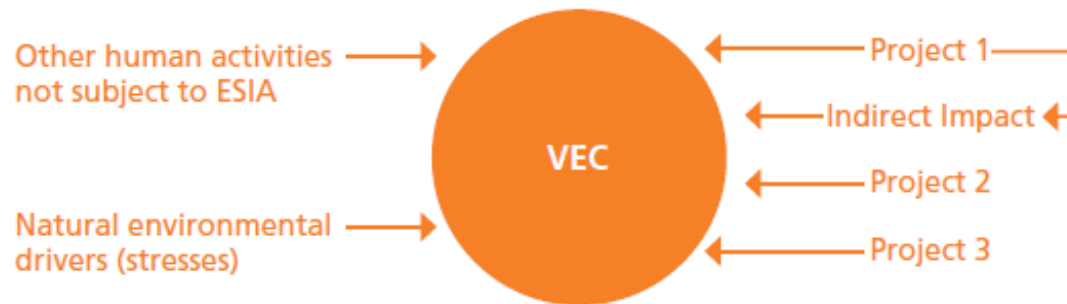
- Air shed.
- Watershed.
- Forest resource.
- Resident wildlife.
- Migratory wildlife.
- Fisheries resource.
- Historic/Socio-cultural resource.
- Land use.
- Community Structure.
- Coastal zone.
- Recreational.

FOCUS: PROJECT CENTERED VS VEC CENTERED

ESIA

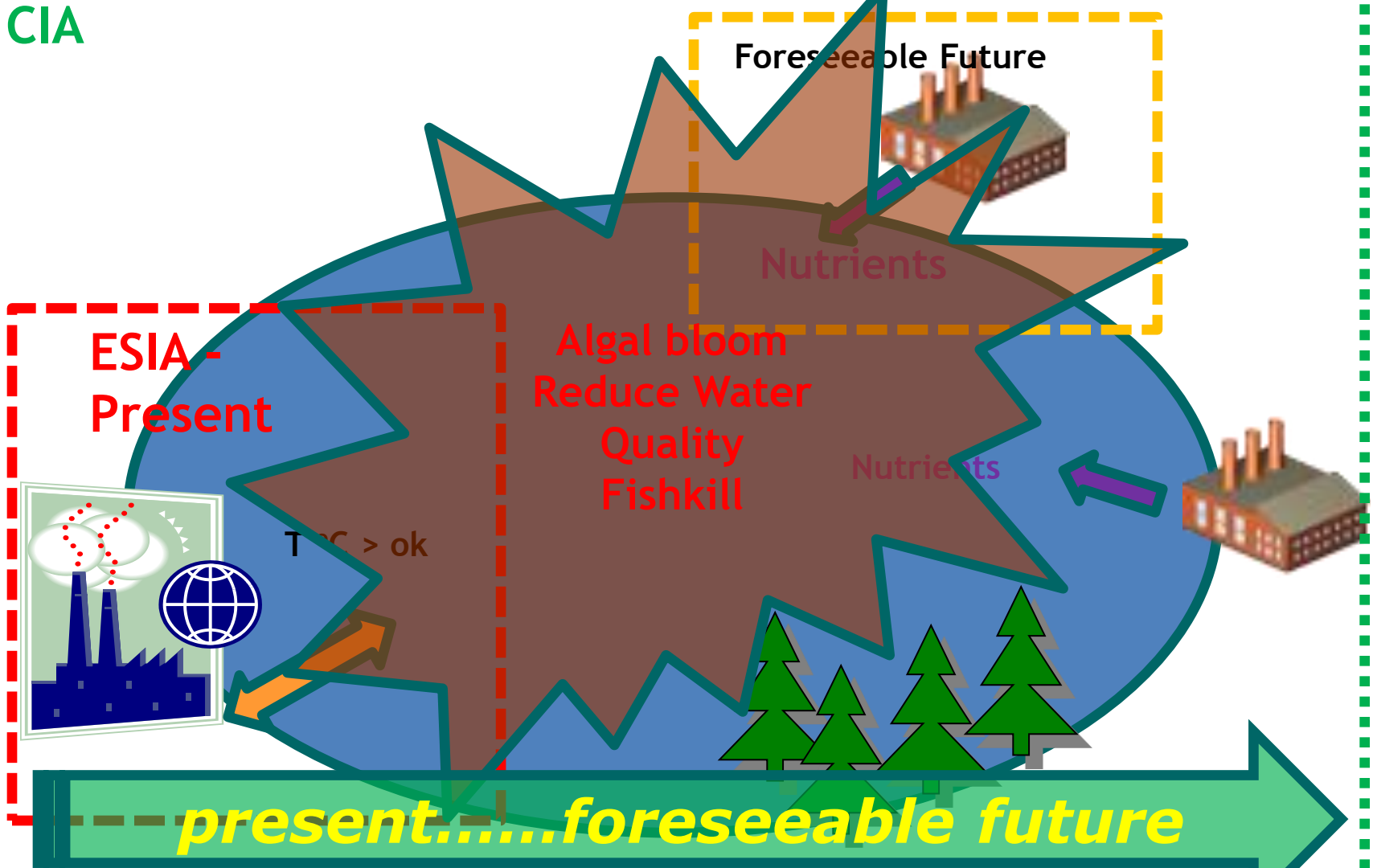


CIA

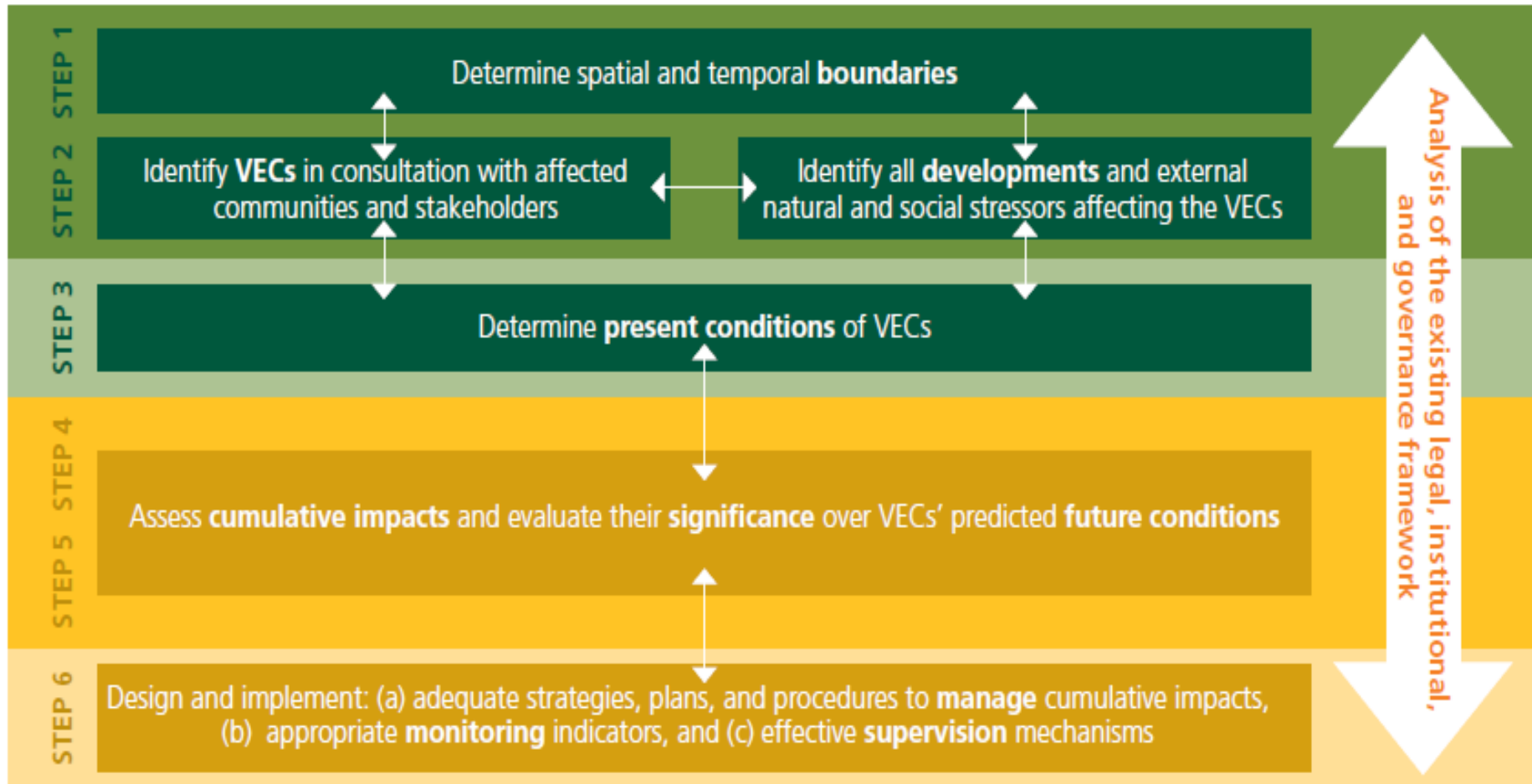


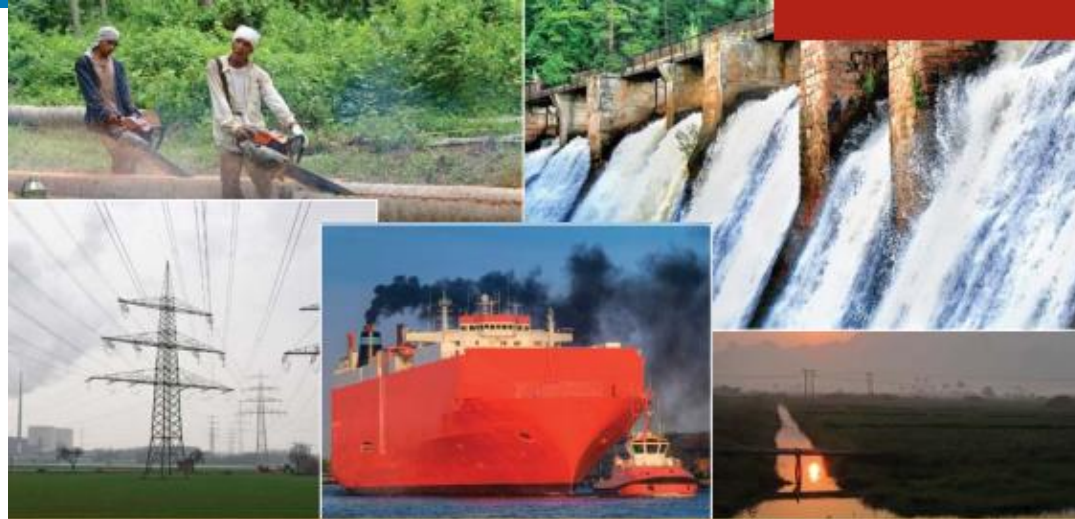
SCOPE: EXPANDED TEMPORAL AND SPATIAL BOUNDARIES

CIA



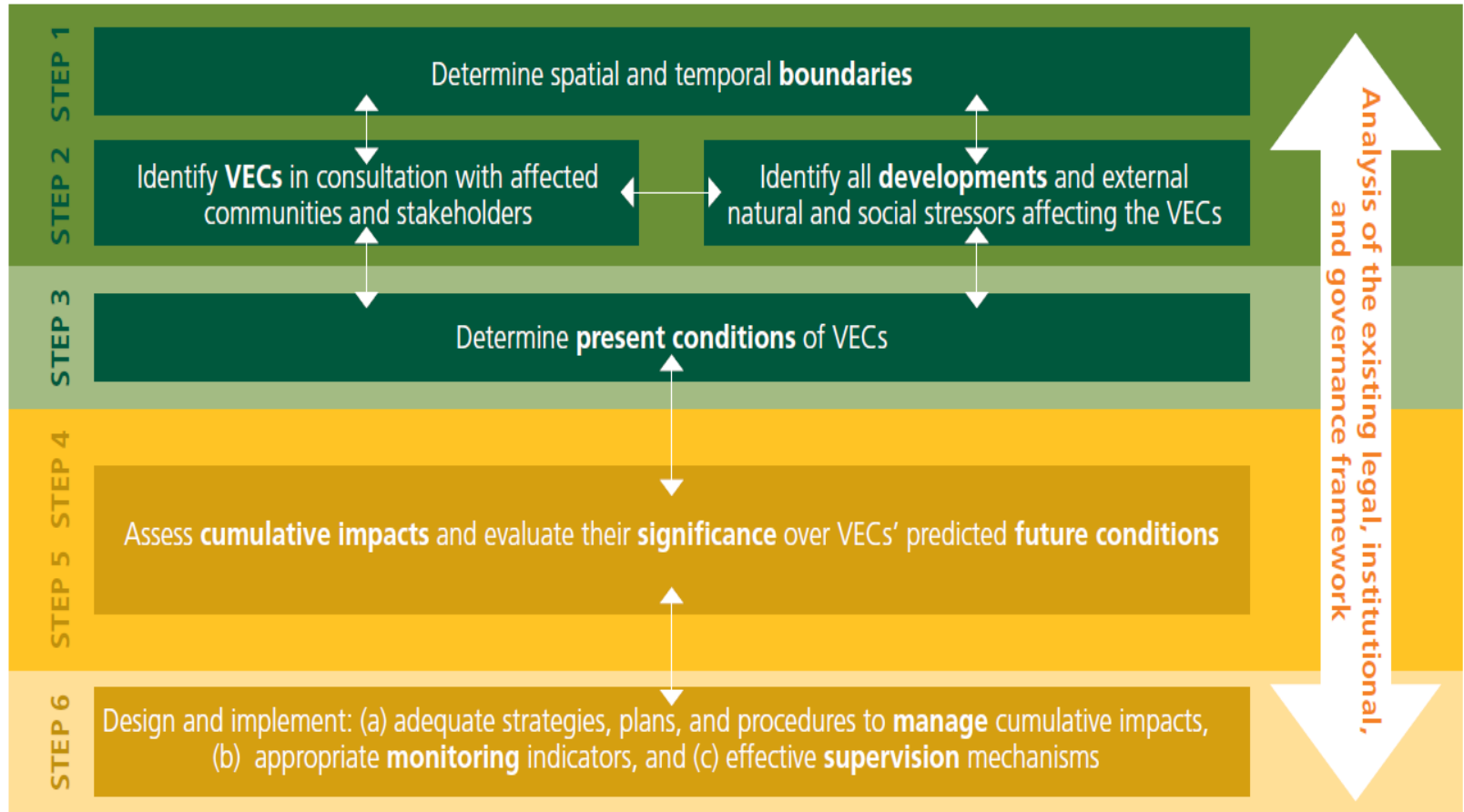
Six-Step Process



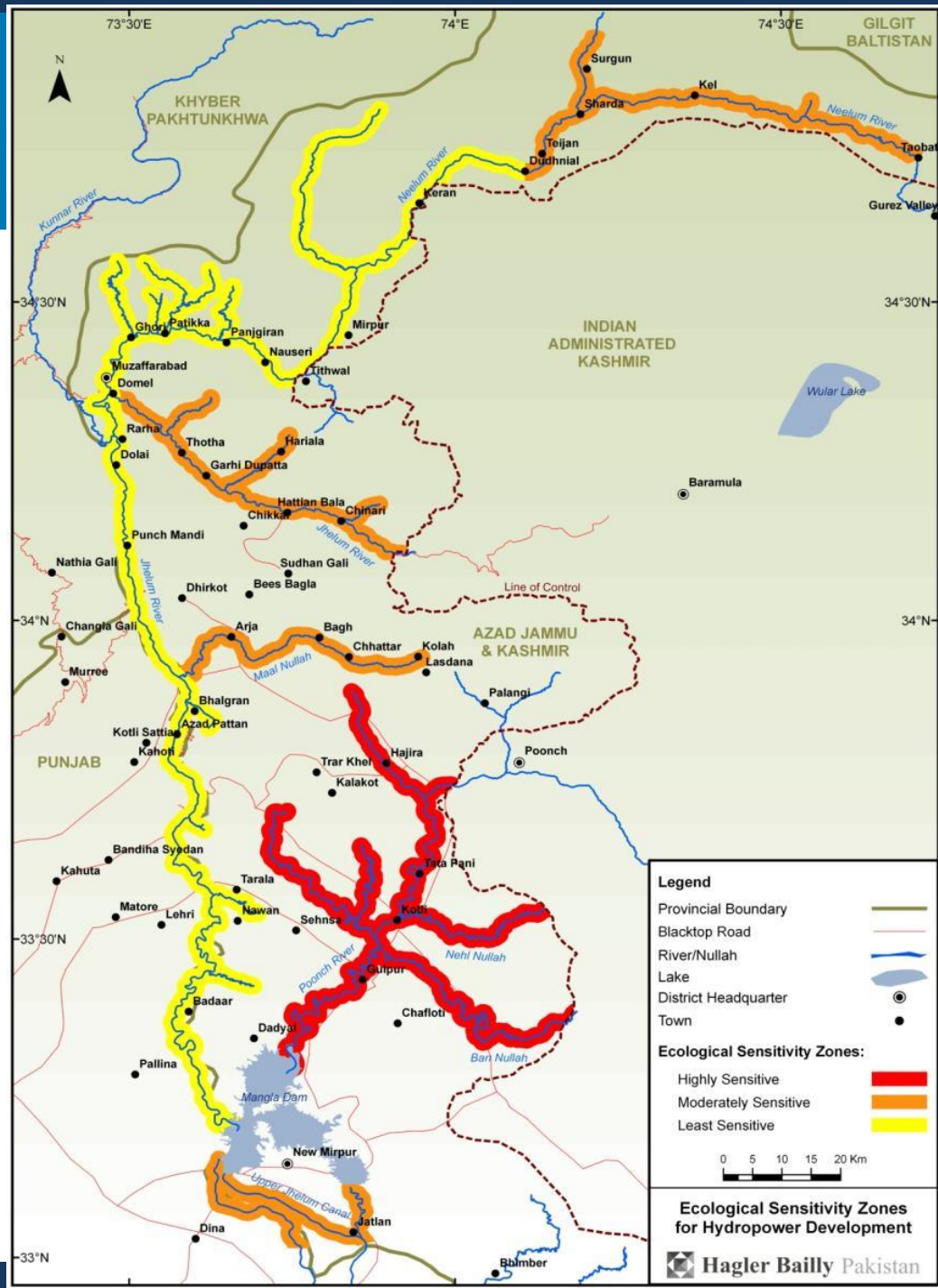


Good Practice Handbook

Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets

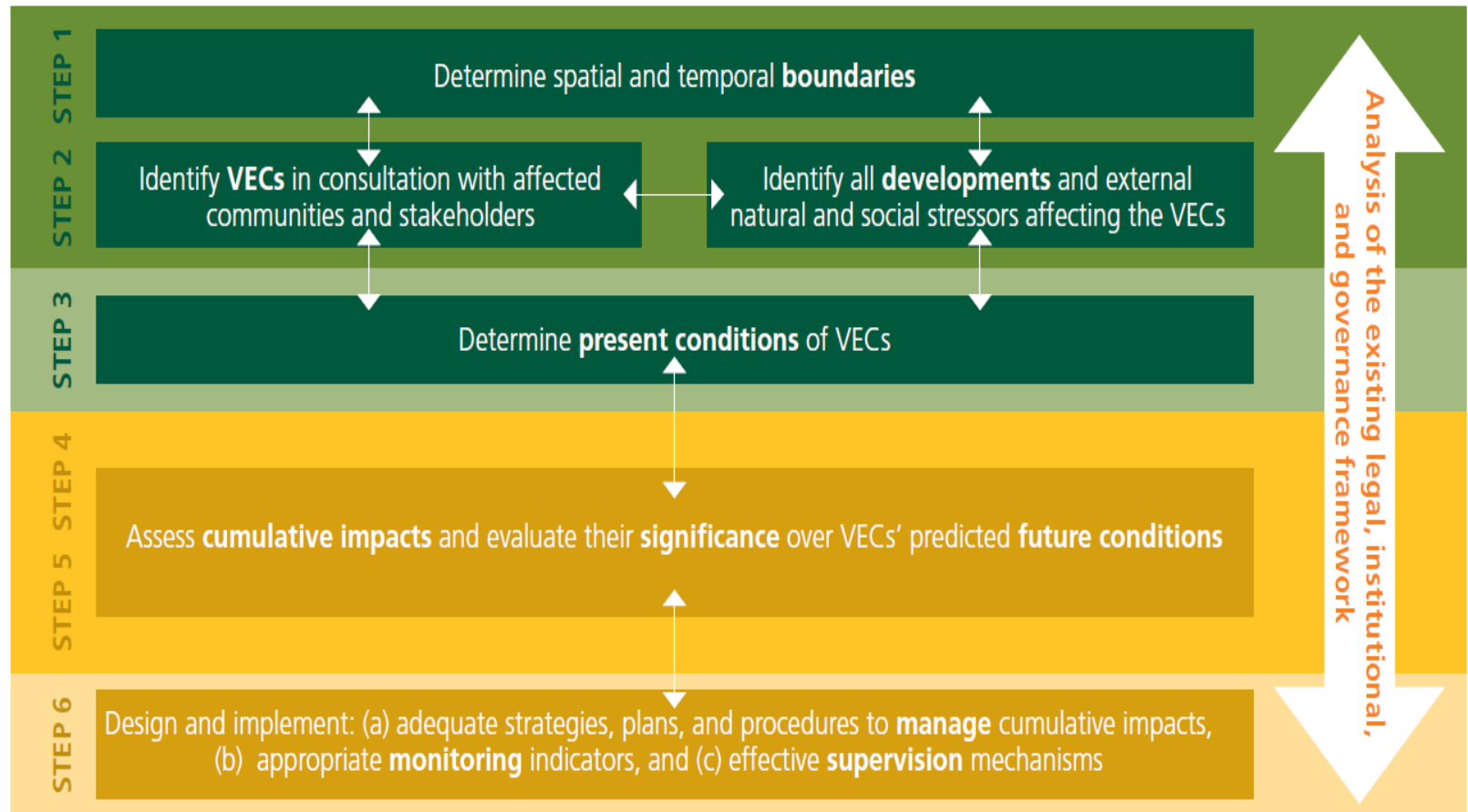


Ecological Zones in the Basin



Study Area – Poonch Basin Main River and Tributaries





The VECs

- Fish Fauna
- Sediment Load of the River
- Landscape

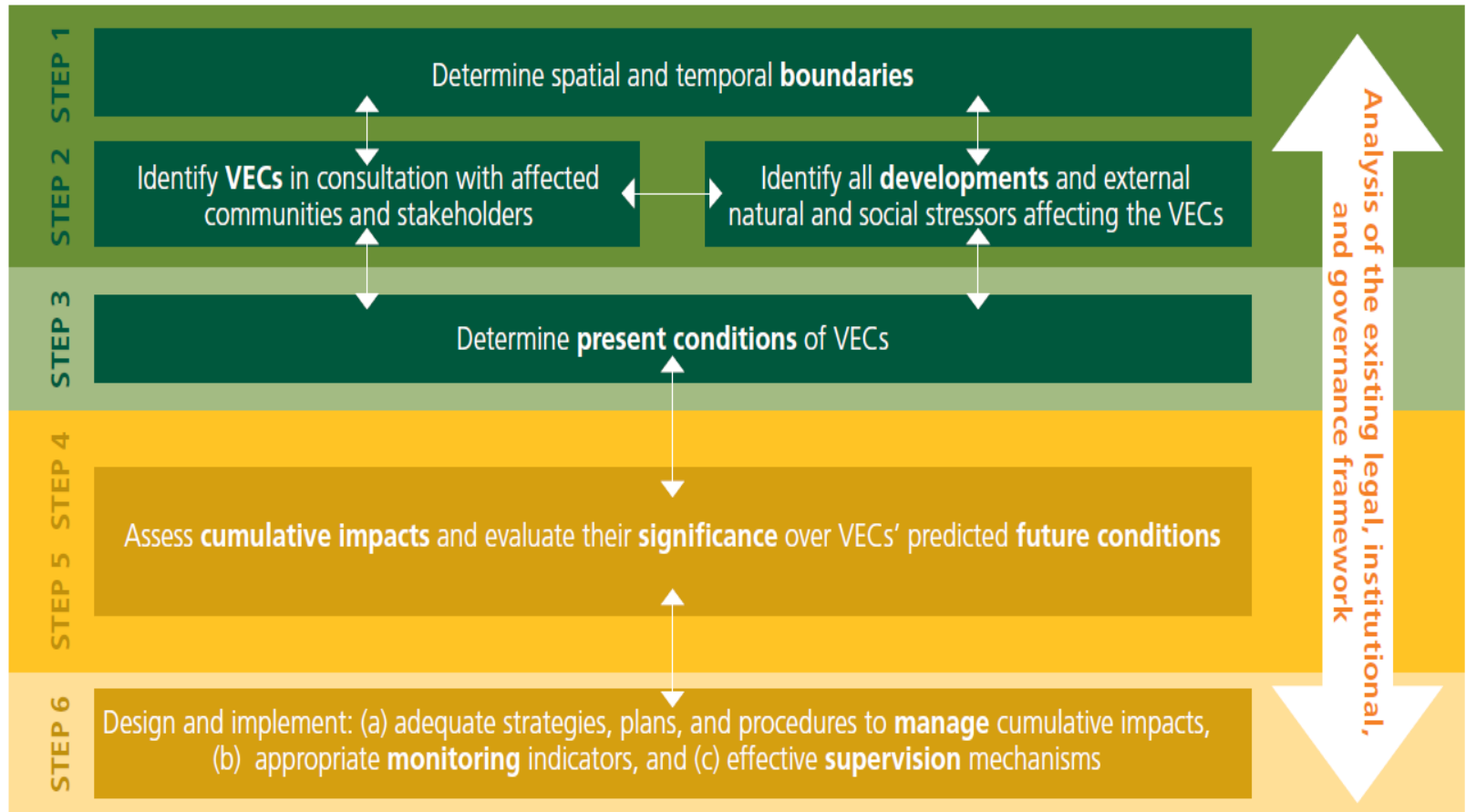






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Fish Baseline – Indicator Species



Tor putitora



Labeo dyocheilus



Schizothorax plagiosomus



Botia rostrata



Clupisoma garua

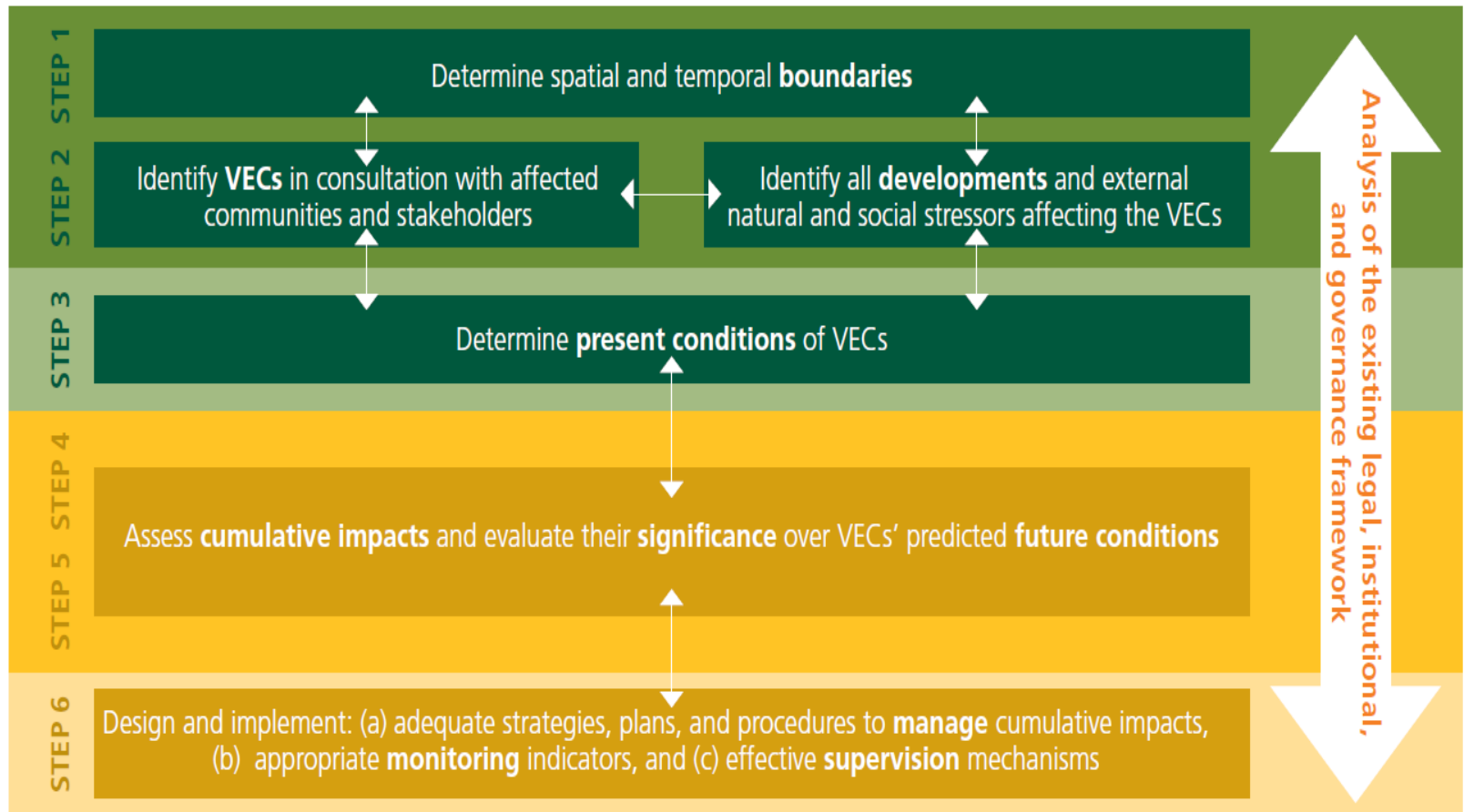


Glyptothorax kashmirensis

Present Ecological Status of EF Sites

<i>EF Site No.</i>	<i>Site</i>	<i>Description</i>	<i>Present Ecological State</i>
1	Kallar Bridge	Situated upstream of the full supply level of the reservoir.	C
2	Borali Bridge	Situated between the weir and the tailrace	C
3	Gulpur Bridge	Situated c. 7 km downstream of the tailrace.	C
4	Billiporian Bridge	Situated c. 16 km downstream of the tailrace, c. 12 km upstream of the full supply level of Mangla Dam.	C

<i>Ecological Category</i>	<i>Description of the Habitat</i>
A	Reference Condition.
B	Slightly Modified
C	Moderately Modified
D	Largely Modified
E	Seriously Modified
F	Critically/Extremely Modified

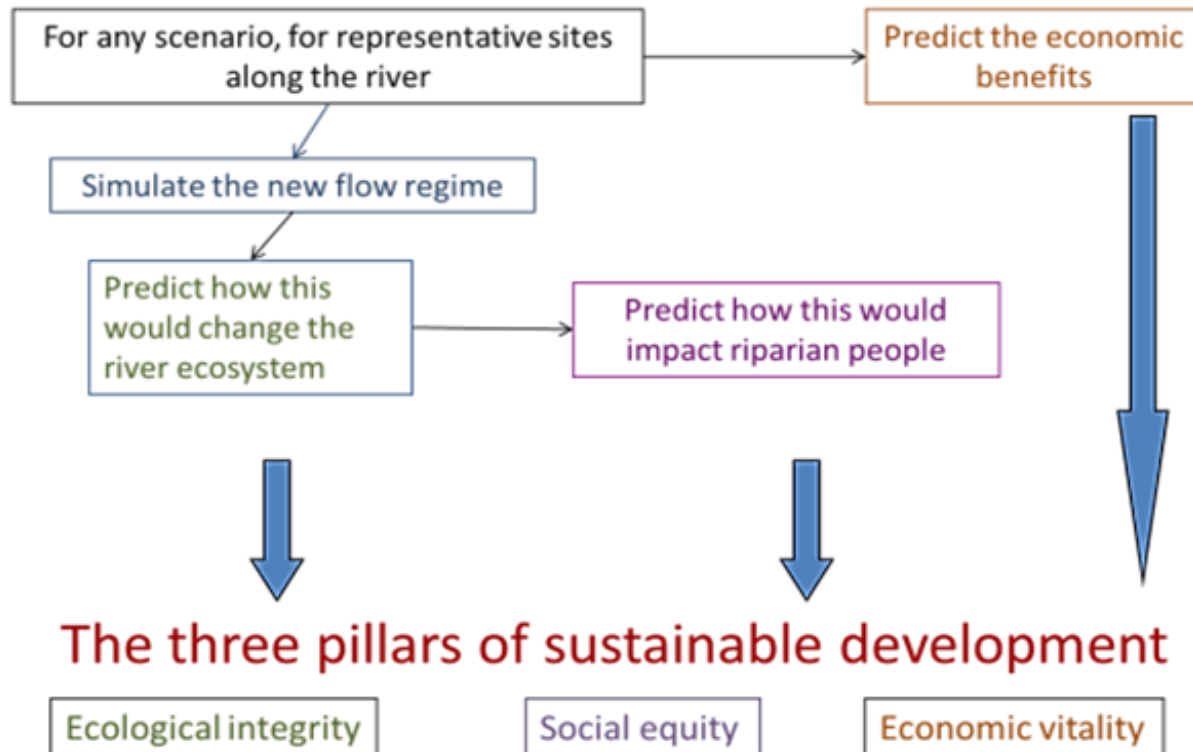


Planned Hydropower Projects



Modeling of Environmental Flows at Basin Level

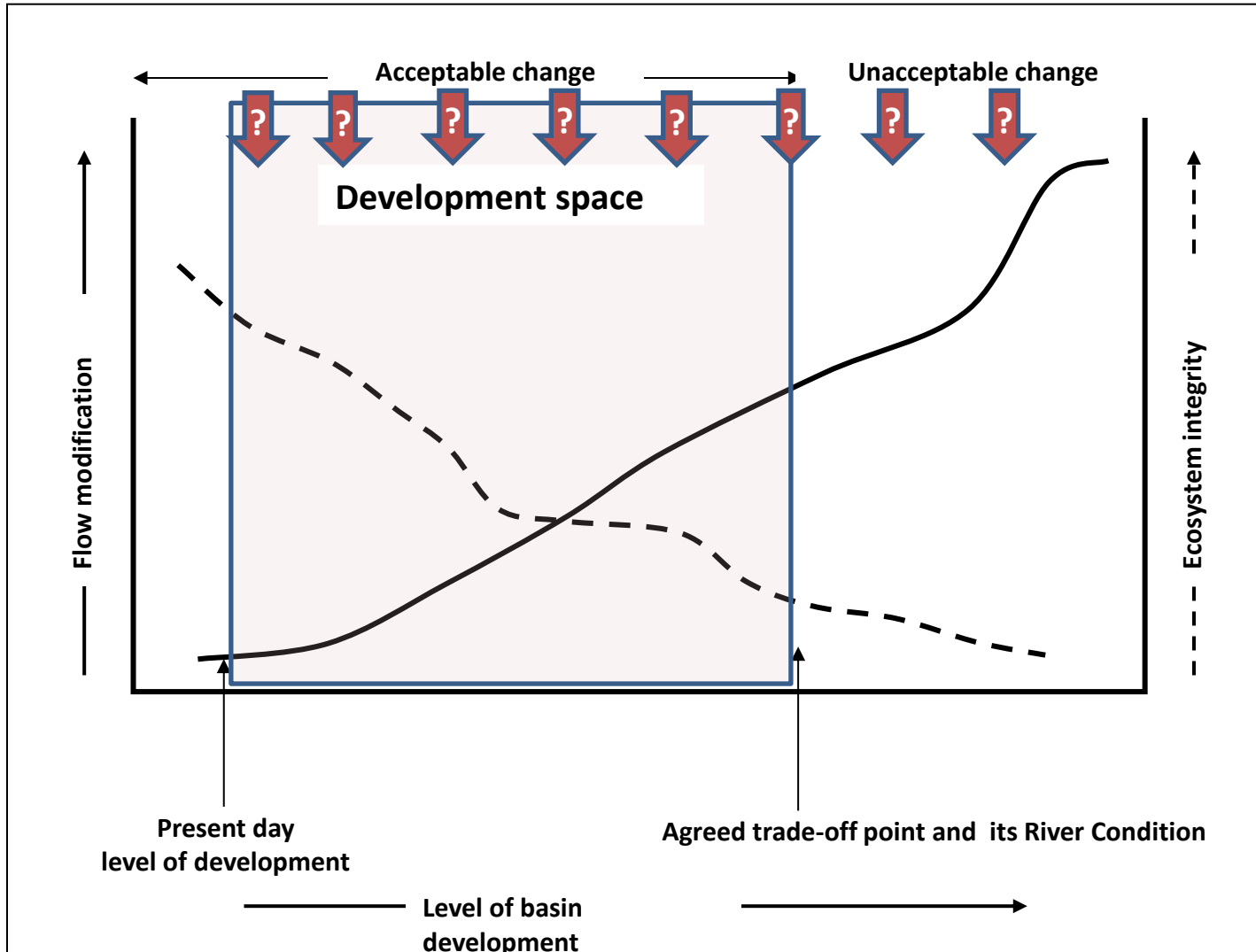
Integrated scenario-based approach: DRIFT



Key features: approach; hydrology; indicators; DSS

DRIFT = Downstream Response to Imposed Flow Transformation

How Scenarios help define the Development Space



Planned Hydropower Projects



Legend

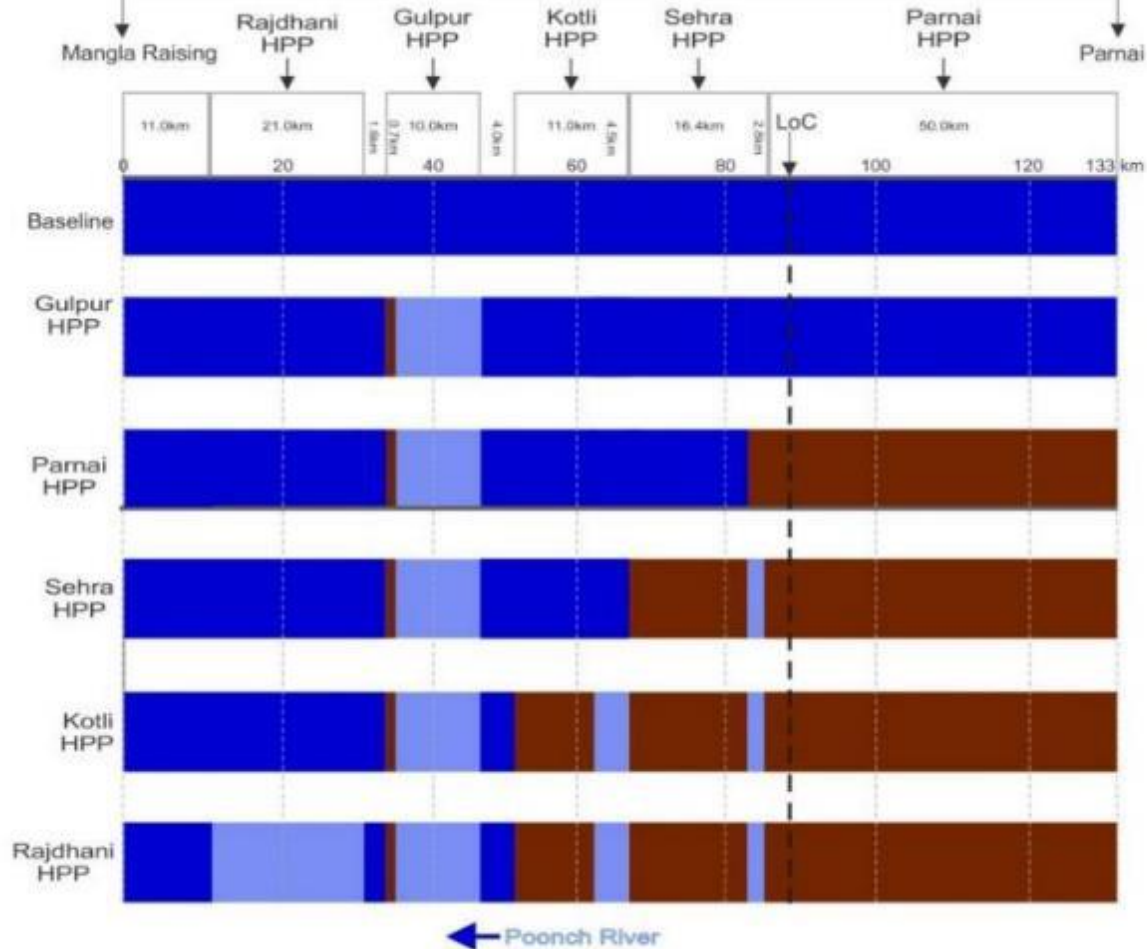
- Dam Site
- Power House
- Reservoir
- Low Flow Section
- Tunnel
- Line of Control
- Blacktop Road
- Unsealed Road
- Major Stream/Nallah
- River
- Lake
- Main Towns

0 5 10 km

Hydropower Projects on the Poonch River

Hagler Bailly Pakistan

Length of Segments Impacted by Planned HPPs on Poonch River

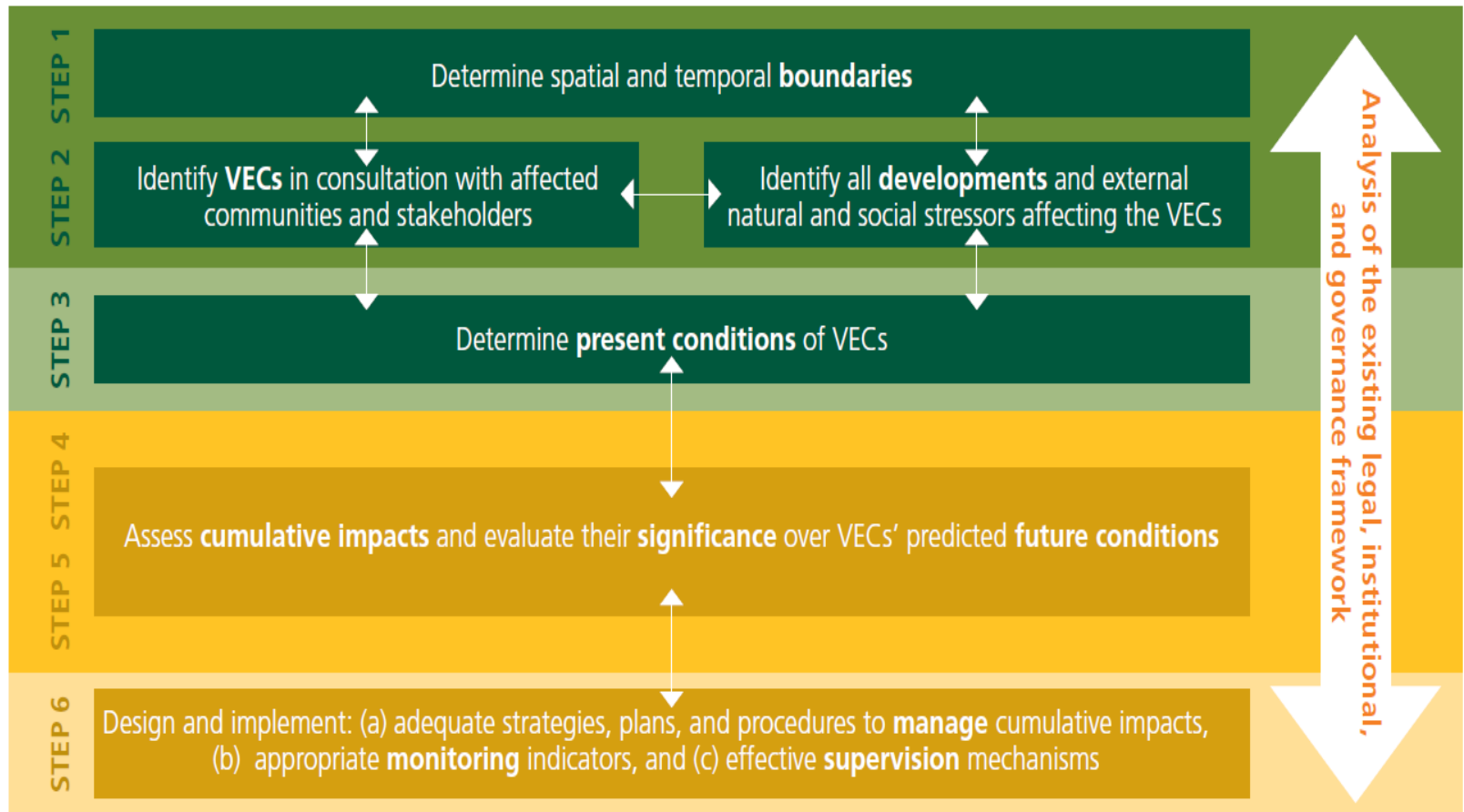


Legend River [dark blue] Reservoir [light blue] Low Flow Section [brown]

Cumulative Impact on Ecological Integrity of Poonch River

B = blue, B/C and C = green, C/D = white, D = orange, No river remaining = red

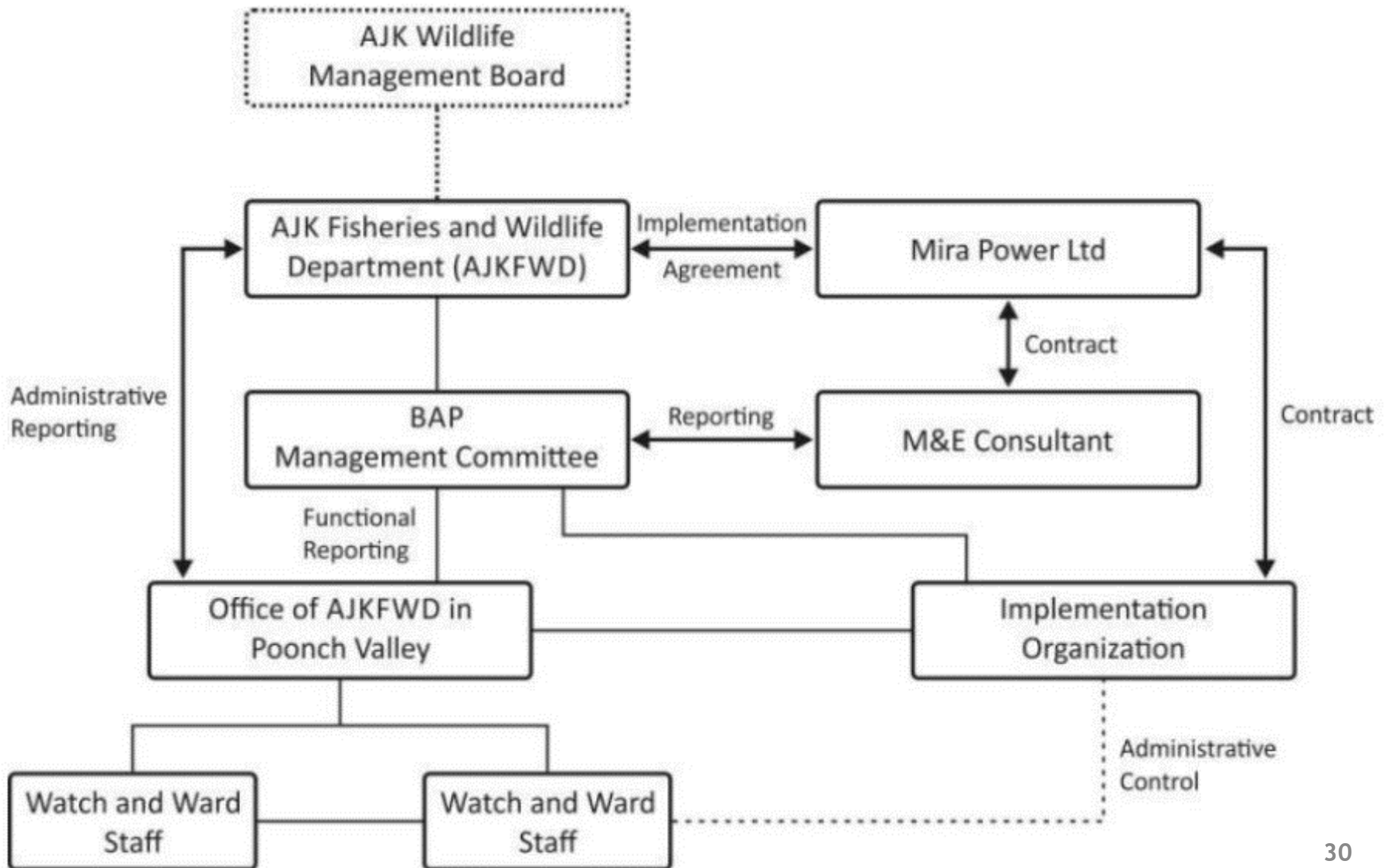
River Reach		2013	Sequential implementation of:				
			Gulpur HPP	Parnai HPP	Sehra HPP	Kotli HPP	Rajdhani HPP
Poonch River upstream of LoC	Parnai weir to LoC	B	B	C/D	C/D	C/D	C/D
	LoC - 5 km	B/C	B/C	C/D	D	D	D
Poonch River downstream of LoC	10	B/C	B/C	C	No river remaining	No river remaining	No river remaining
	15	B/C	B/C	C	D	D	D
	20	B/C	B/C	C	D	D	D
	25	B/C	B/C	C	D	D	D
	30	B/C	B/C	C	C	No river remaining	No river remaining
	35	B/C	B/C	C	C	D	D
	40	B/C	B/C	C	C	D	D
	45	B/C	No river remaining	No river remaining	No river remaining	No river remaining	No river remaining
	50	B/C	No river remaining	No river remaining	No river remaining	No river remaining	No river remaining
	55	B/C	D	D	D	D	No river remaining
	60	B/C	B/C	B/C	C	C/D	No river remaining
	65	B/C	B/C	B/C	C	C/D	No river remaining
	70	B/C	B/C	B/C	C	C/D	No river remaining
	75	B/C	B/C	B/C	C	C/D	D
	80	B/C	B/C	B/C	C	C/D	D
85	B/C	B/C	B/C	C	C/D	D	
90	B/C	B/C	B/C	C	C/D	D	
Mendhar Nullah		B	B	D	D	D	D



Decision of the EPA and Wildlife Department

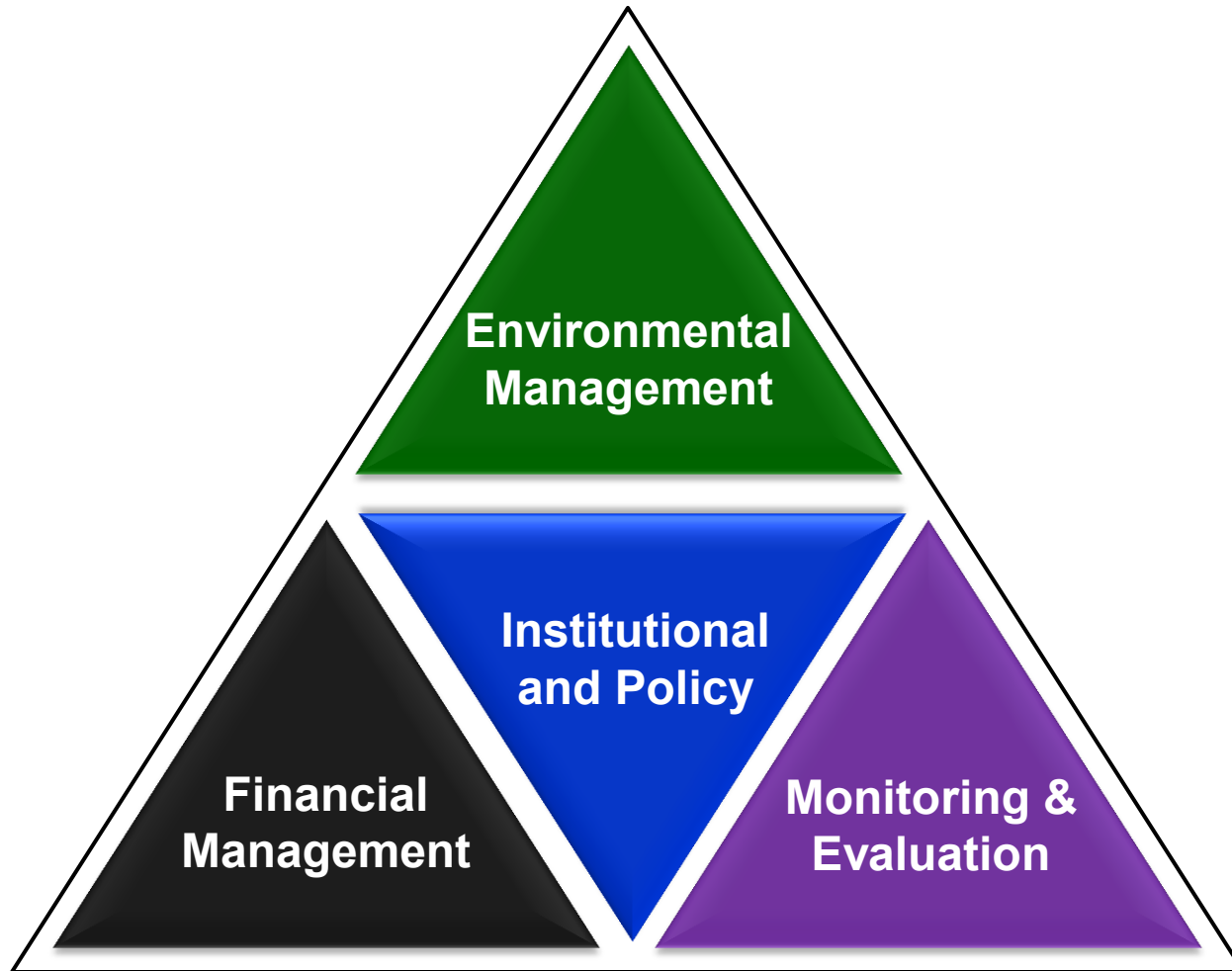
Irrespective of the environmental design of the individual projects, in combination the projects planned will have a detrimental and irreversible impact on the ecology of Poonch River. The Wildlife Department and the EPA approved the project with the condition that all future projects will have to prove net gain in biodiversity in the national park.

Institutional Arrangement for Implementation of the BAP



Lessons Learnt from the Gulpur Project

From 'Business as Usual' to 'Collaborative Management': Management approach involving four frameworks



The Perception Problem

- Project owners see their responsibility ending at the property boundary and expects the government to take care of all the issues outside using tax money
- There is reluctance to engage on 'complicated problems' outside which are caused by others and over which project owners have little control
- The governments tend to see the issue as that of development vs environment, and are not aware of win-win opportunities to promote sustainable development that almost always exist

Institutional Challenges - Multiple Responsibilities at the Basin Level

- Regulatory: EPA, forest and wildlife departments, mining department
- Administration: local governments, municipal authorities, police
- Policy and coordination: Wildlife management board, forest management board, boards of autonomous organizations
- Political: Public ownership and commitment
- New coordination mechanisms have to be created to cater the special needs of the basin

Leadership and Ownership

- Coordination mechanisms do not function well without leadership from an institution.
- Leadership is best exercised by a government institution that has the legal mandate over the priority VECs.
- The private sector can bring in professionalism and best practices in management, and can benefit from reduced risks and enhanced reputation

Financing of Conservation

- While the projects struggle to finance environmental costs, financing of environmental costs outside the project area at the basin level becomes exceedingly difficult.
- The base case or business as usual is to expect the government to finance basin wide costs through the departments using tax revenues
- Special financing mechanisms or funds can be designed to collect the funds and divert them to organizations and institutions that can deliver conservation

The Way Forward

- Long term business and reputational risks are typically related to cumulative impacts
- The private sector has technical and management capacities that the government agencies often lack
- Public private partnerships in implementation of Cumulative Impact Assessments provide opportunities to build capacities and drive institutional and policy reforms