

LANDSCAPE LEVEL PLANNING TOWARDS DEVELOPING A DSS/DST FOR SUSTAINABLE MANAGEMENT AND ECO-RESTORATION OF PROTECTED AREAS (PAs)

International Symposium on

“Benefiting from Earth Observation: Bridging the Data Gap for
Adaptation to Climate Change in the Hindu Kush-Himalayan Region”

4-6 October 2010

SOALTE, Crowne Plaza, Kathmandu, Nepal

Organized by: ICIMOD

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policy institute for
**sustainable
development**

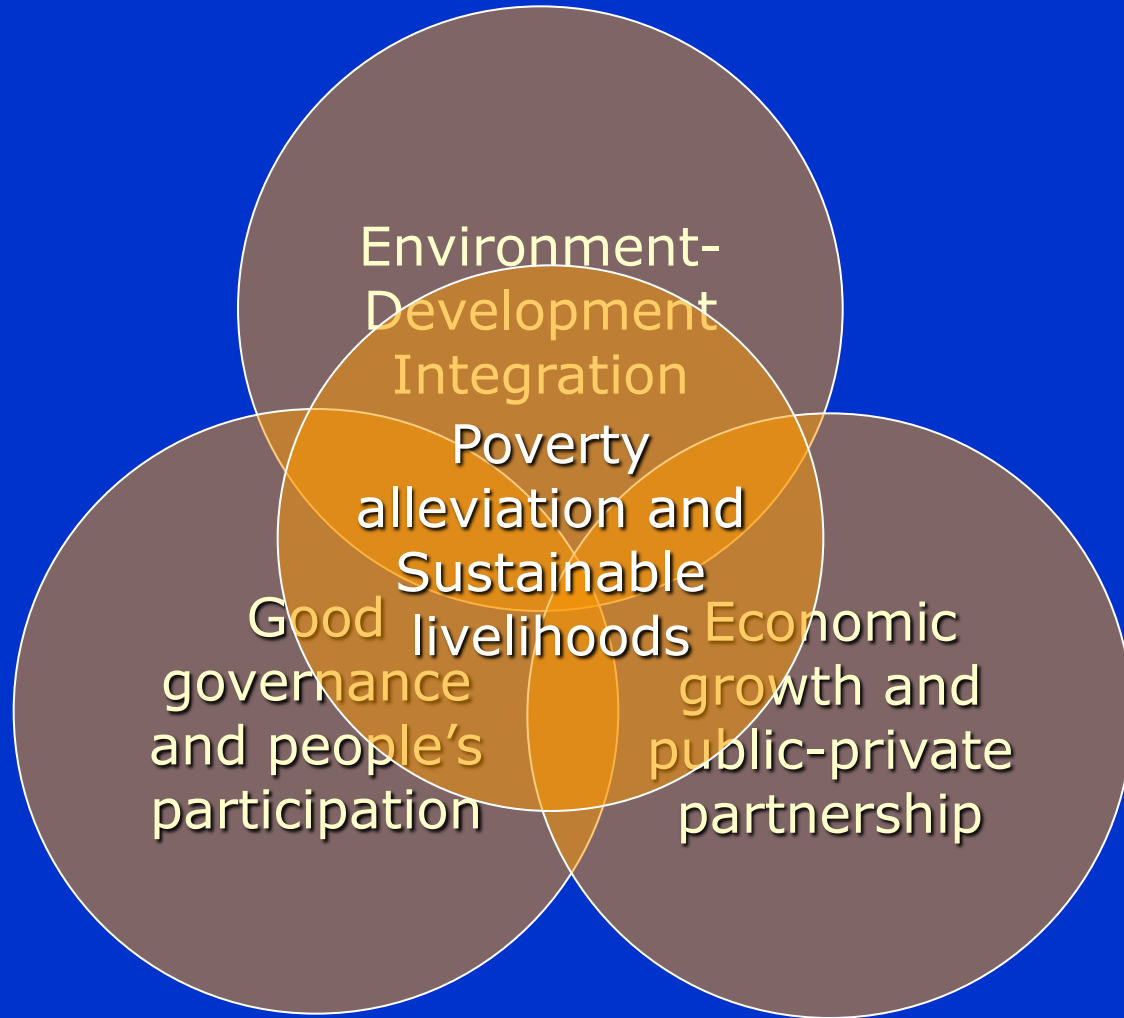


Established in 1986 with a vision to
promote **people-centred,**
environmentally sound and socially
just development



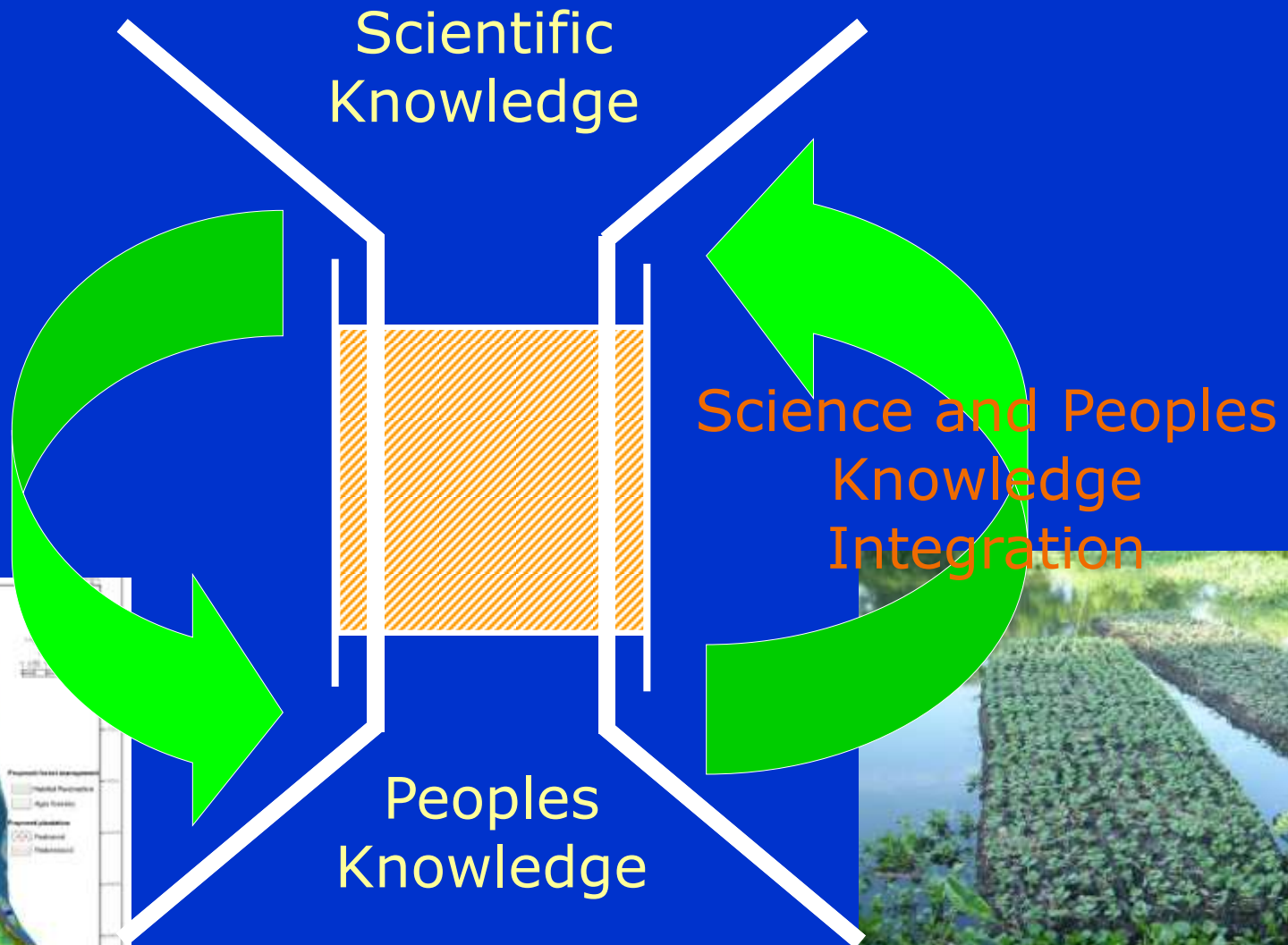


Thematic Areas of BCAS: Advancing Sustainable Development






Approaches of BCAS: Integration of Scientific and Peoples Knowledge



Approaches of BCAS: Integration of Knowledge and Decisions at Different Levels

	Level	Sector	Examples
	Mega	Global and International	Climate change, Trade, Sustainable Development and Biodiversity, etc.
	Sub Mega / Super Macro	Regional (Multi Country)	Regional Water basins Management, Multinational Environmental Agreements, Networking, etc.
	Macro	National	Finance Policy, Natural Resource Management, Poverty Reduction, Policy Advocacy, Information Sharing, etc.
	Meso	Local/Ecosystem Administrative Sub national	Natural Resource Management, Water program, Infrastructure, Livelihoods, etc.
	Micro	Community	Social Mobilization, Local Action for Environmental Natural Resource Management, Livelihoods, etc.

Landscape level planning (LLP) -adaptation to CC

- ❑ Acknowledges the role of human actions in the environment while committing to sustaining biodiversity, agricultural production & rural and urban settlements and industrial activities.
- ❑ Also examines & seeks solutions to multidisciplinary issues that affect sustainability within a natural landscape boundary.

Landscape level planning (LLP)

- ❑ Requires local knowledge reflecting intimate understanding of problems and opportunities existing on the ground
 - tenure issues,
 - local resource use patterns,
 - drivers of deforestation &
 - other information sourced from local communities.
- ❑ A key element of LLP is accurate and detailed geo-spatial data and maps that facilitate informed decision making



Bangladesh-Regional Overview

Study Areas

Nepal

Pakistan

Bangladesh

Myanmar

India

Bay of Bengal

Relief Map of South Asia



Why Landscape Level Planning

- Identify and prioritize forest/wetland landscapes to:
 - Intact zone
 - Community based management zone
 - Sustainable management zone
 - Value added economic zone
- Provide an example of landscape level planning for sustainable forest/wetland resources management and conservation



How do we proceed...?

Conservation Analysis

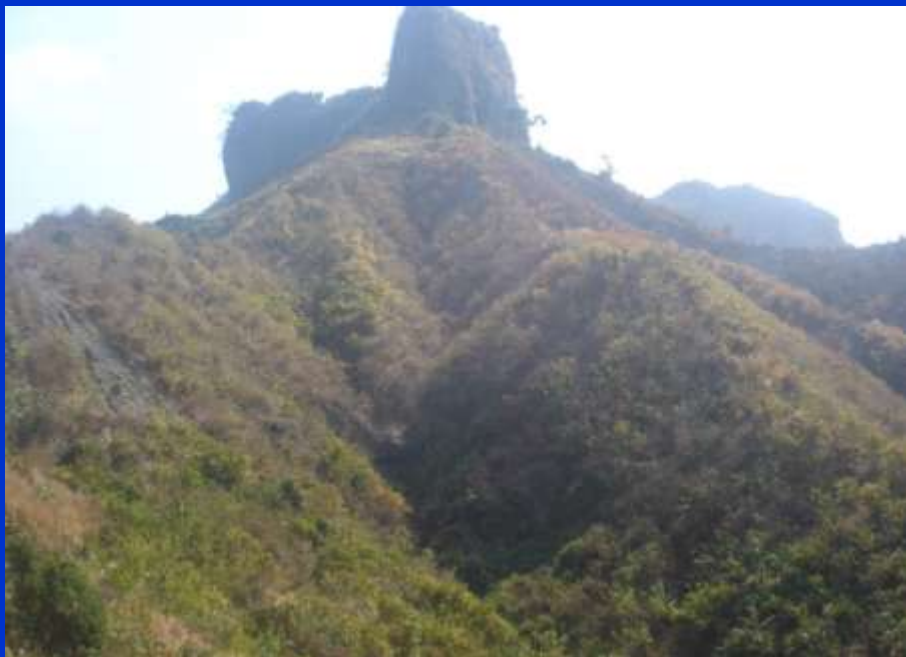
- identify large, relatively intact forest areas
- assess the conservation value and threats to these forest areas
- Floral and faunal diversity
- prioritize the forest landscapes for protection, management interventions, resources where we will get the best return on investment (**conservation is priority**)
- how and where communities can be involved.....? (**how revenue shared?**)





High resolution QuickBird multi-spectral image FCC 432 in RGB over Teknaf Landscape

(3 visible range bands with 2.6 m) and 4th band panchromatic (with 0.40m spatial resolution)







Landscape level issues encountered in conservation areas in Bangladesh

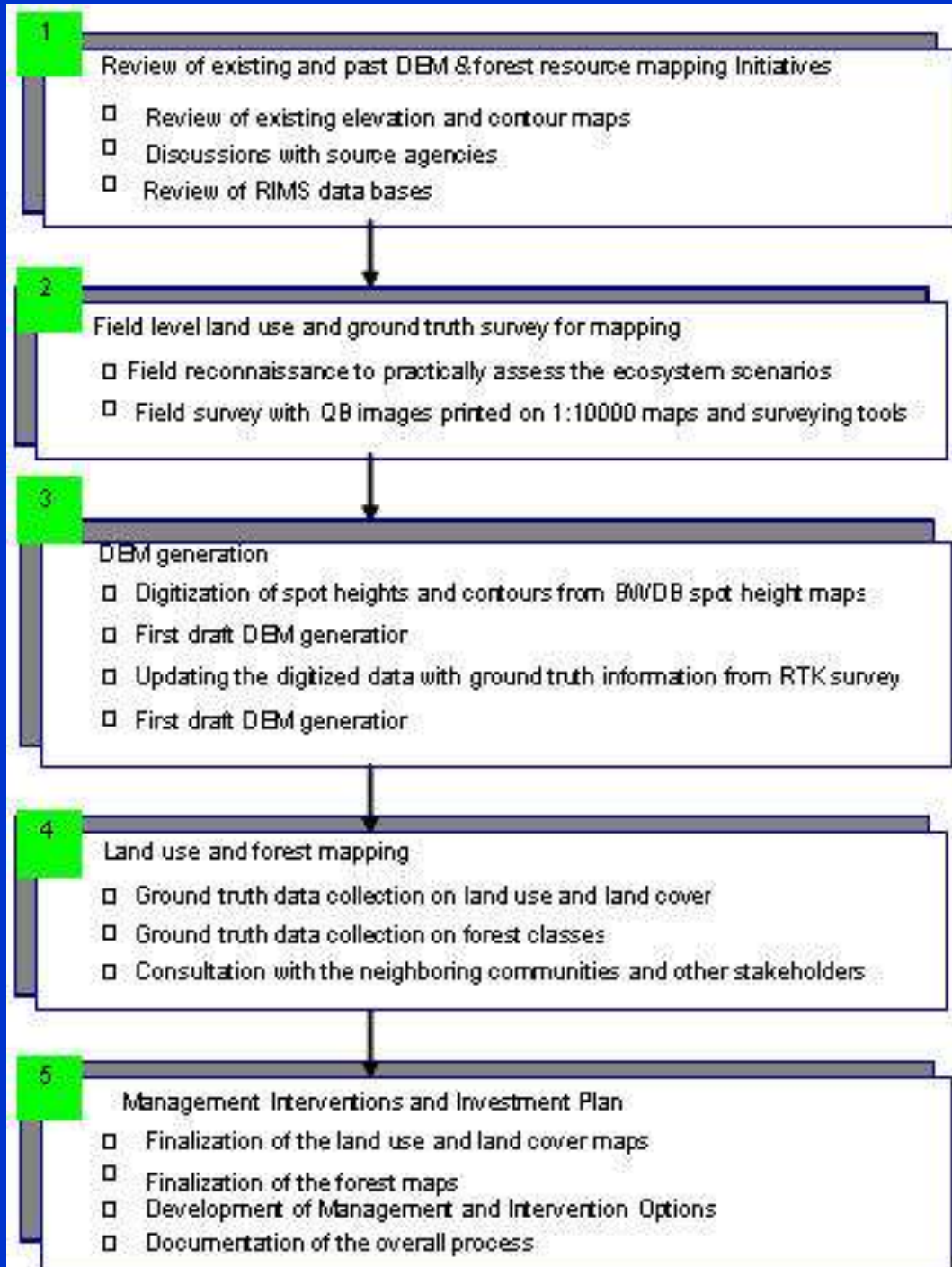
- ❖ Increasing population trend
- ❖ Increasing human settlement/encroachments
- ❖ Conversion of forest/wet land
- ❖ Farming practices on steep slopes contributing to sedimentation of downstream areas & the decline of productivity (quality & quantity) in water bodies;



- ❖ Fuel wood collection and illegal logging that is degrading areas designated for the biodiversity preservation;
- ❖ Livestock grazing in hill forests and their associated native biodiversity and ecosystem services
- ❖ a trend of decreasing forest cover within protected and reserve forests;
- ❖ Habitat degradation
- ❖ Nexus of illicit extraction while resource base is dwindling alarmingly;



Sequential flow of methodology:



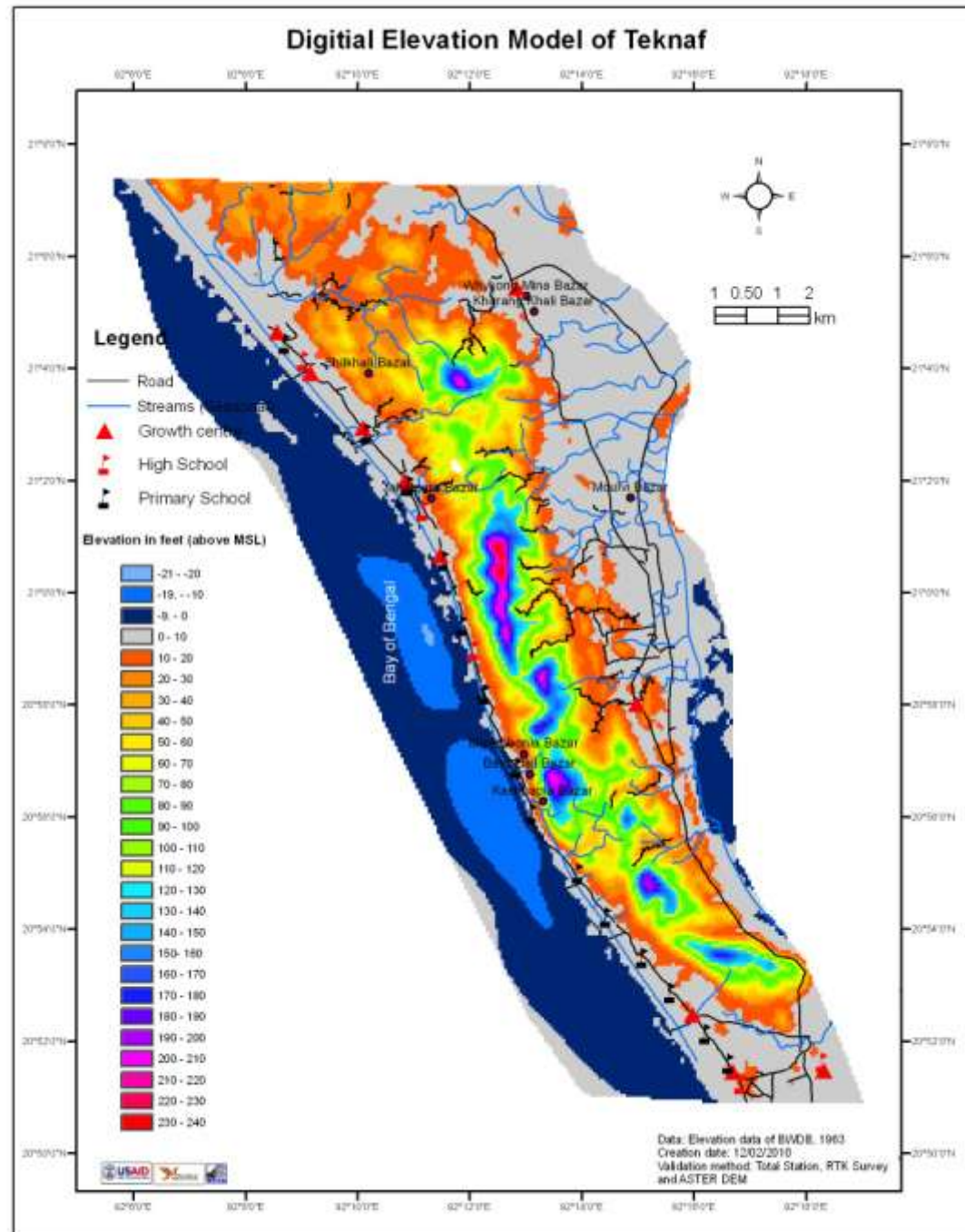




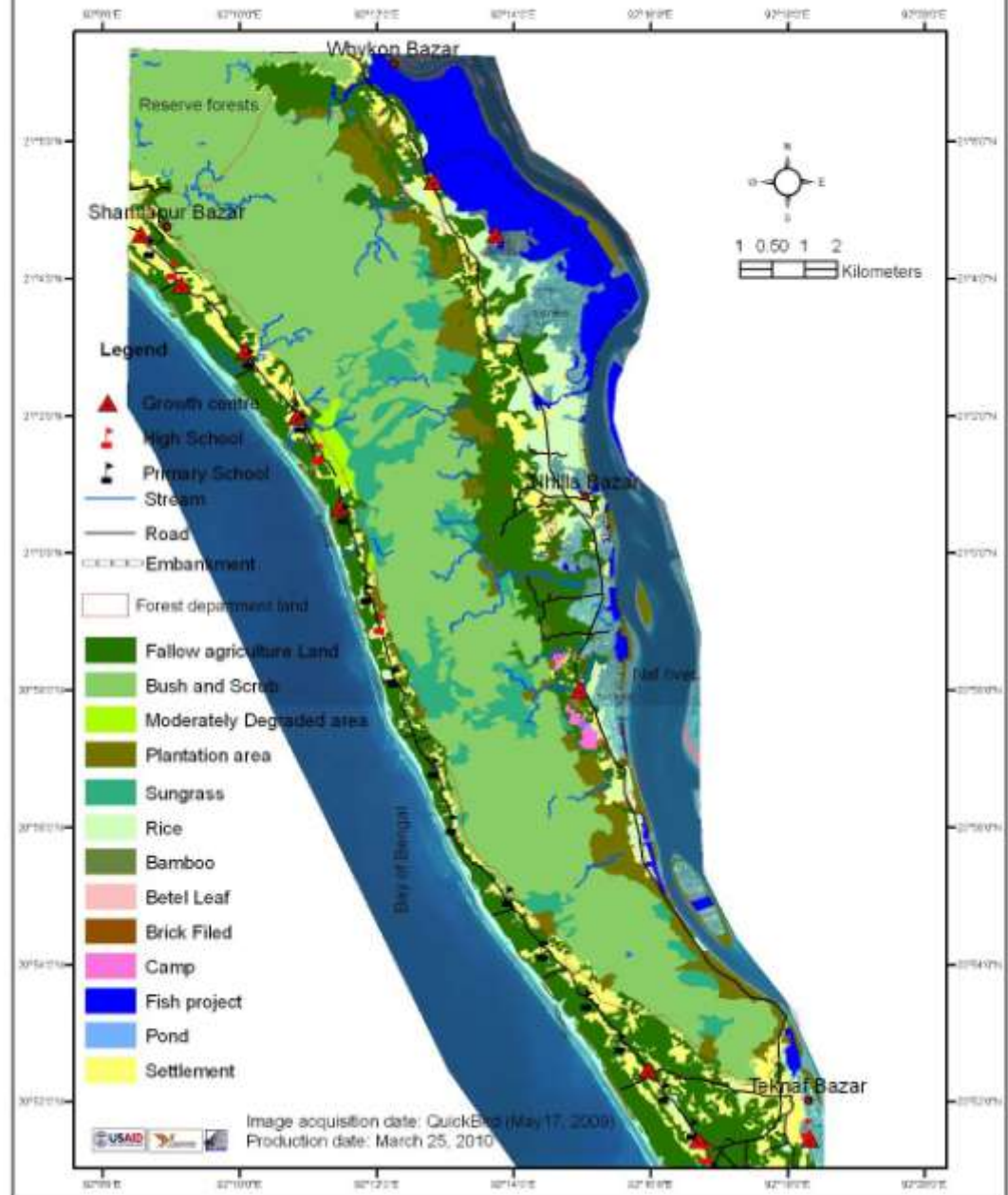
Geo-spatial Mapping

Output

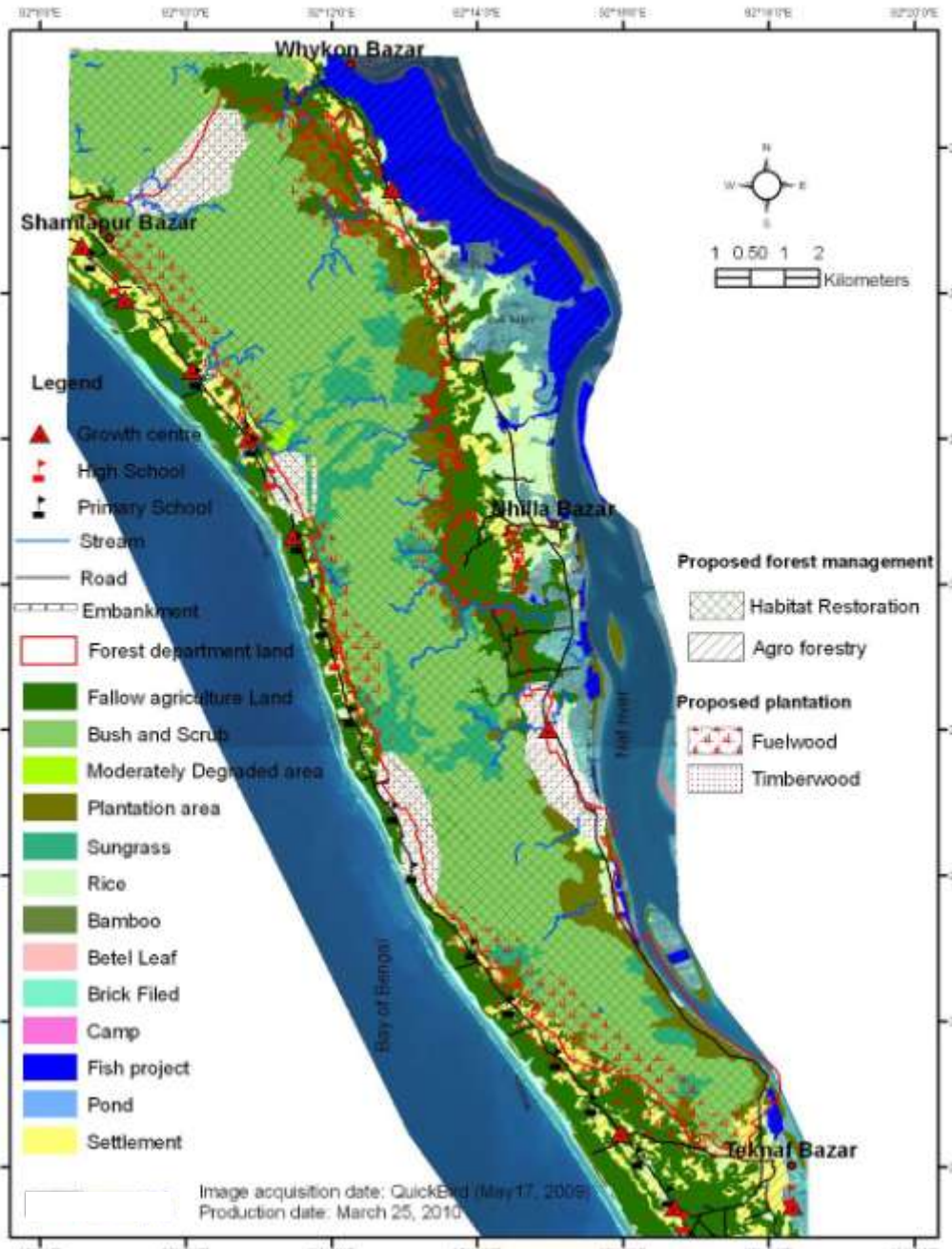
- Sub-topo-sheets &
- Contour maps
- WDB Spot height
- RTK Survey
- Total Station survey



Landuse map of Teknaf



Proposed Sustainable Landscape Management Recommendations for Teknaf



Conclusions and way forward

- The geospatial mapping developed various site-specific options for sustainable eco-restoration PAs:
 - considering climate change scenarios;
 - Land-cover and land use monitoring scenarios,;
 - involving large volumes of data from RS applications are becoming more prevalent in ecosystem management decisions.
- The spatio-temporal data of an ecosystem can be integrated into an interactive and web based decision support system (DSS)
- A DSS/DST may help in learned decision making on and management of the ecosystem
- A DSS/DST should be at landscape level.

Thank you

For your comments and suggestions



Plantation



Natural regeneration



Farming



Winter birds

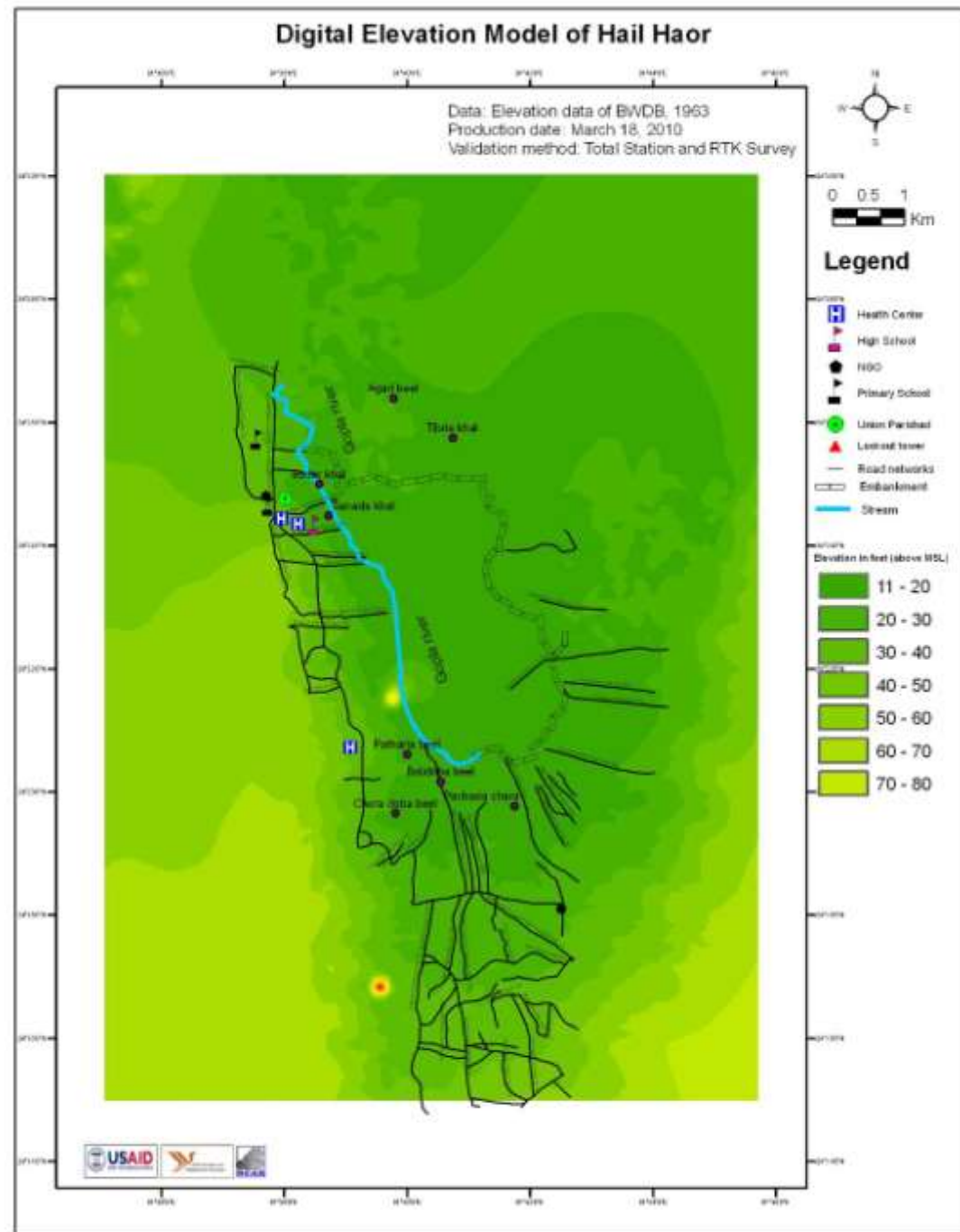


Pineapple garden

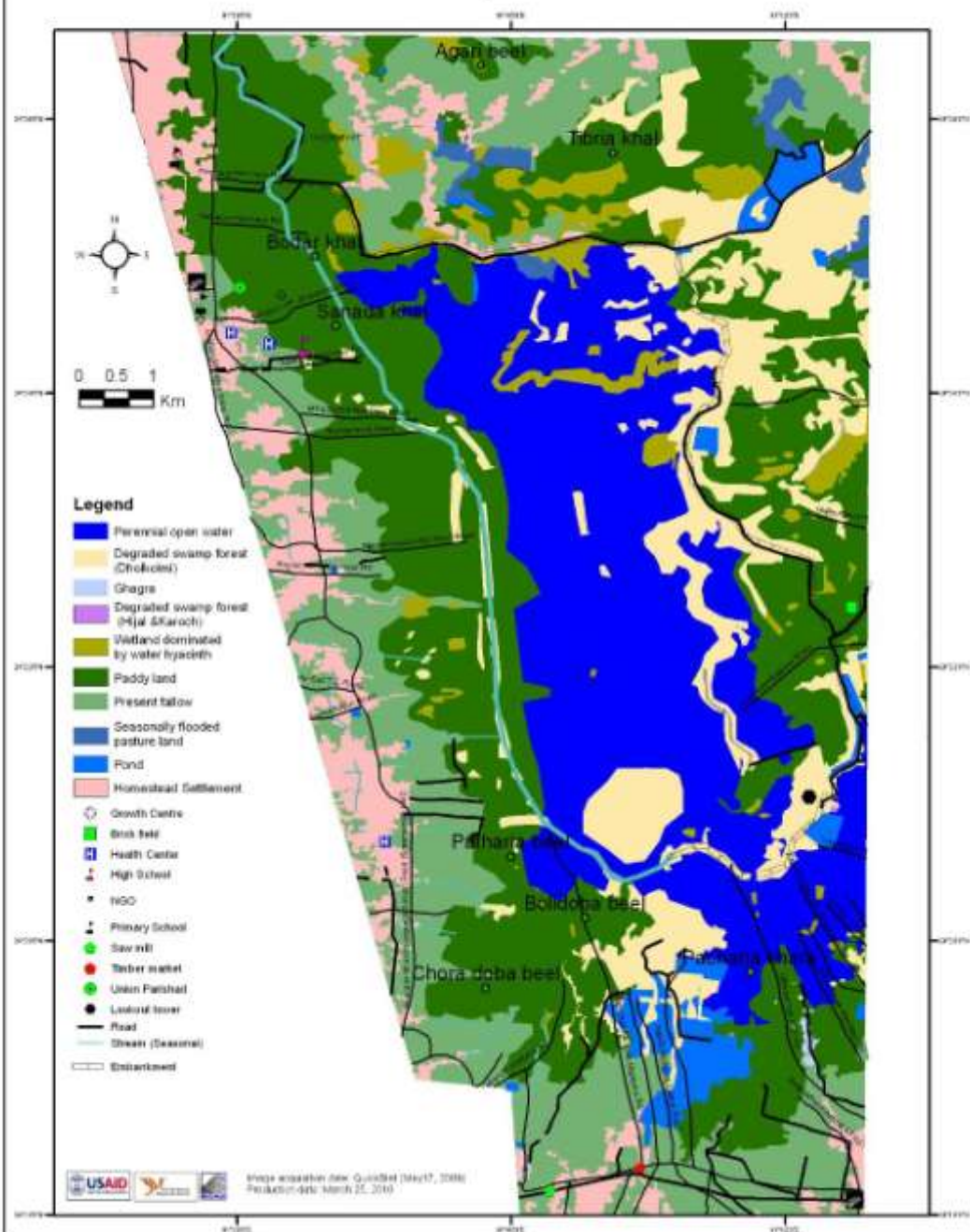


Geo-spatial Mapping

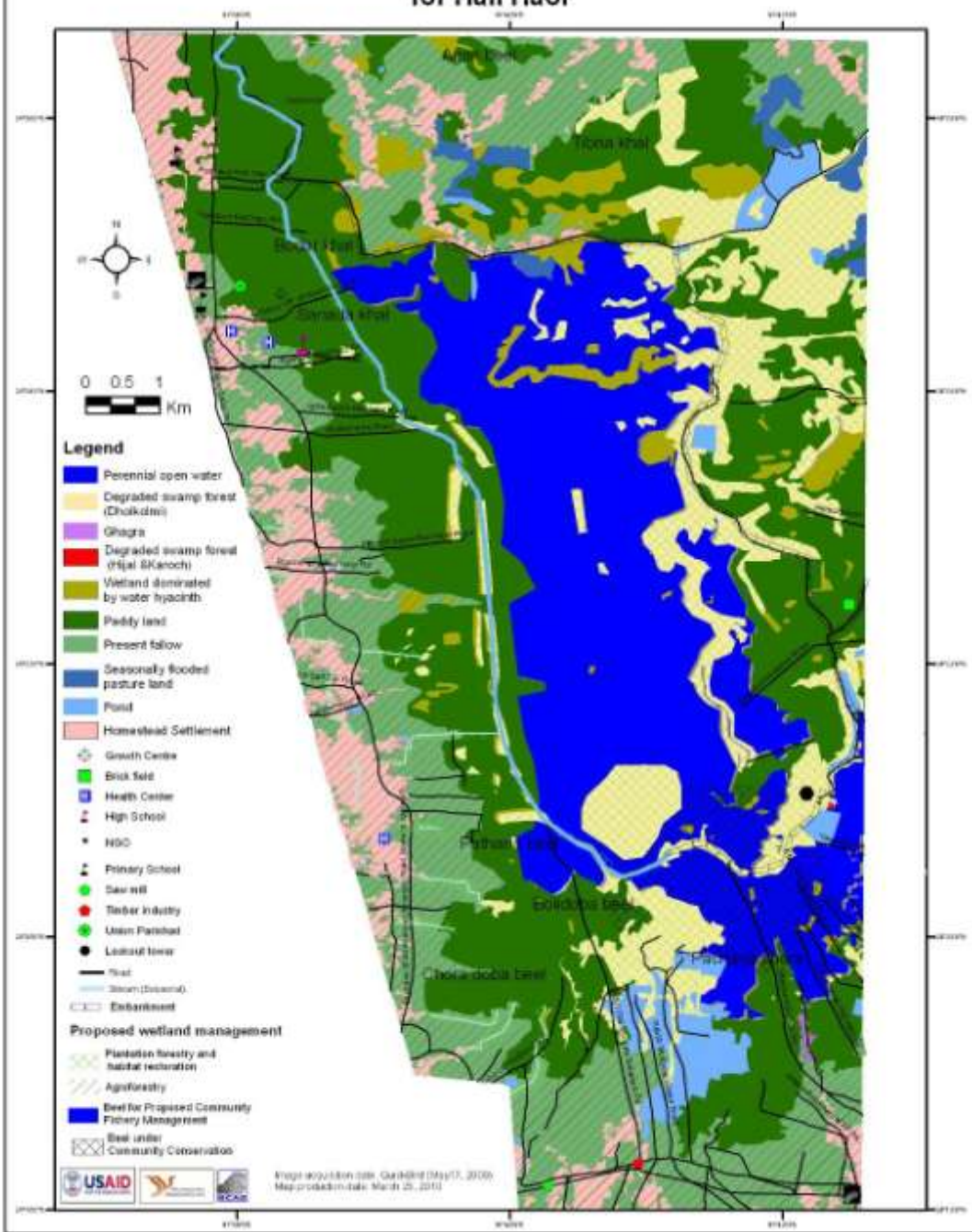
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Landuse Map of Hail Haor



Proposed Sustainable Landscape Management Recommendations for Hail Haor



Map production date: Updated (May 17, 2009)
Map production date: March 25, 2010