Making Asian forests and trees enhance resilience to climate change

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CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

Outline

1) Why focus on adaptation?

2) Adaptation of forests and trees

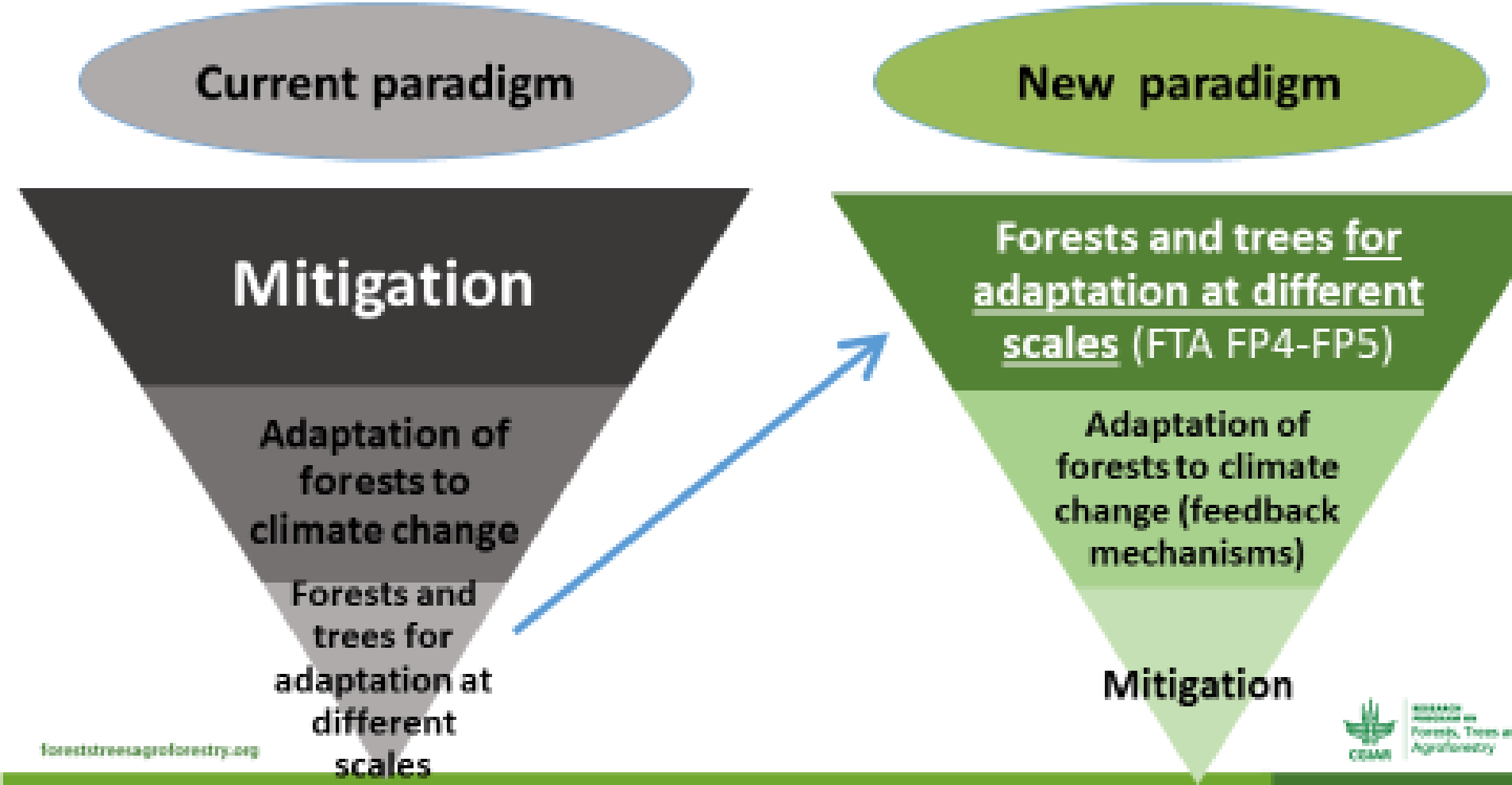
3) Forests and trees for adaptation

4) What is needed?

5) What role for AFoCO?

1) Why focus on adaptation?

The issue: The role of forests in the scientific and policy debate on climate change



Why focus on adaptation?

- urgency for adaptation, climate is changing, for forests and trees need to think at least 30 years ahead
- easier to motivate actors on adaptation, for themselves and their community (than mitigation, global)
- Broader set of objectives and multiple factors, context dependent (than single carbon)
- more complex, knowledge intensive, requiring the engagement of multiple actors
- An entry point for climate action with multiple benefits: mitigation and other co-benefits: environment, social
- GCF needs to spend 50% on adaptation. Now also focus on co-benefits (mitigation and SDGs). One of the strong points of forestry

2) Adaptation of forests and trees

Brazil nut tree, Madre de Dios, Peru

Adaptation of natural forests (NAPs)

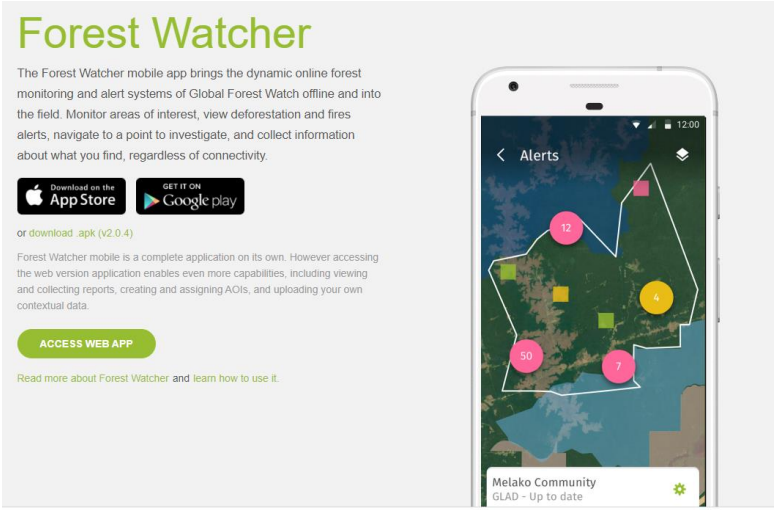
- Monitoring and risk management systems:
  - Changes in ecosystems
  - Forest fires
  - Pests and diseases
- Research,
  - species of interest (commercial, threatened, invasive),
  - biological indicators of stress,
  - modeling effects on ecosystems
  - restoration
- Ecosystem based adaptation
- Maintaining forests in good health (biodiversity)
- Ensure connectivity

Adaptation of planted forests (NAPs)

- monitoring and risk management systems:
  - forest fires
  - Pests and diseases
- changes of planted species and varieties (and related changes in value chains)
- conservation and sustainable management of genetic resources
- anticipate future changes; for instance, use seeds coming from areas that are hotter or drier in order to have adult trees that will be adapted to the future climate.

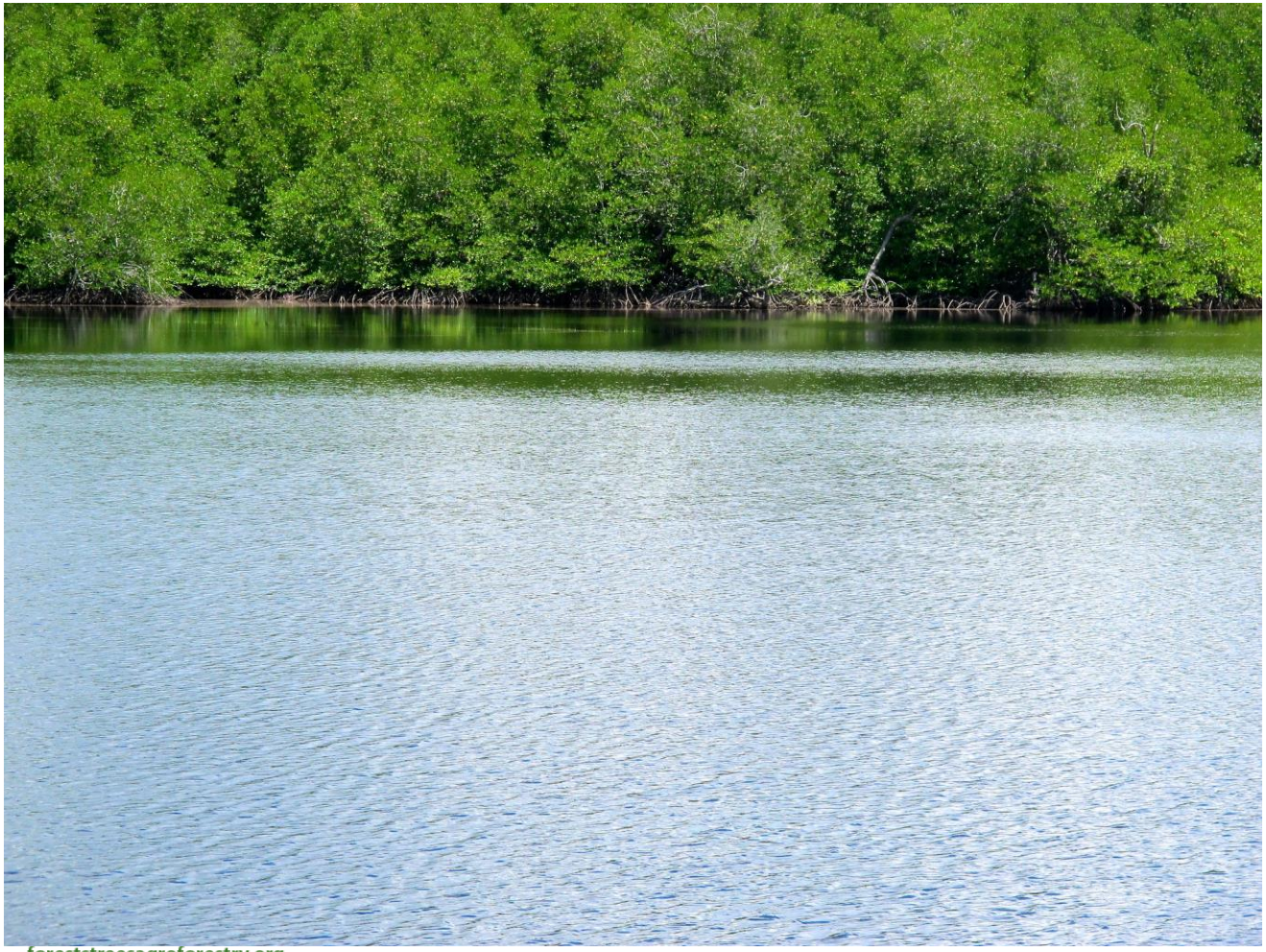
Innovations for adaptation

- Monitoring



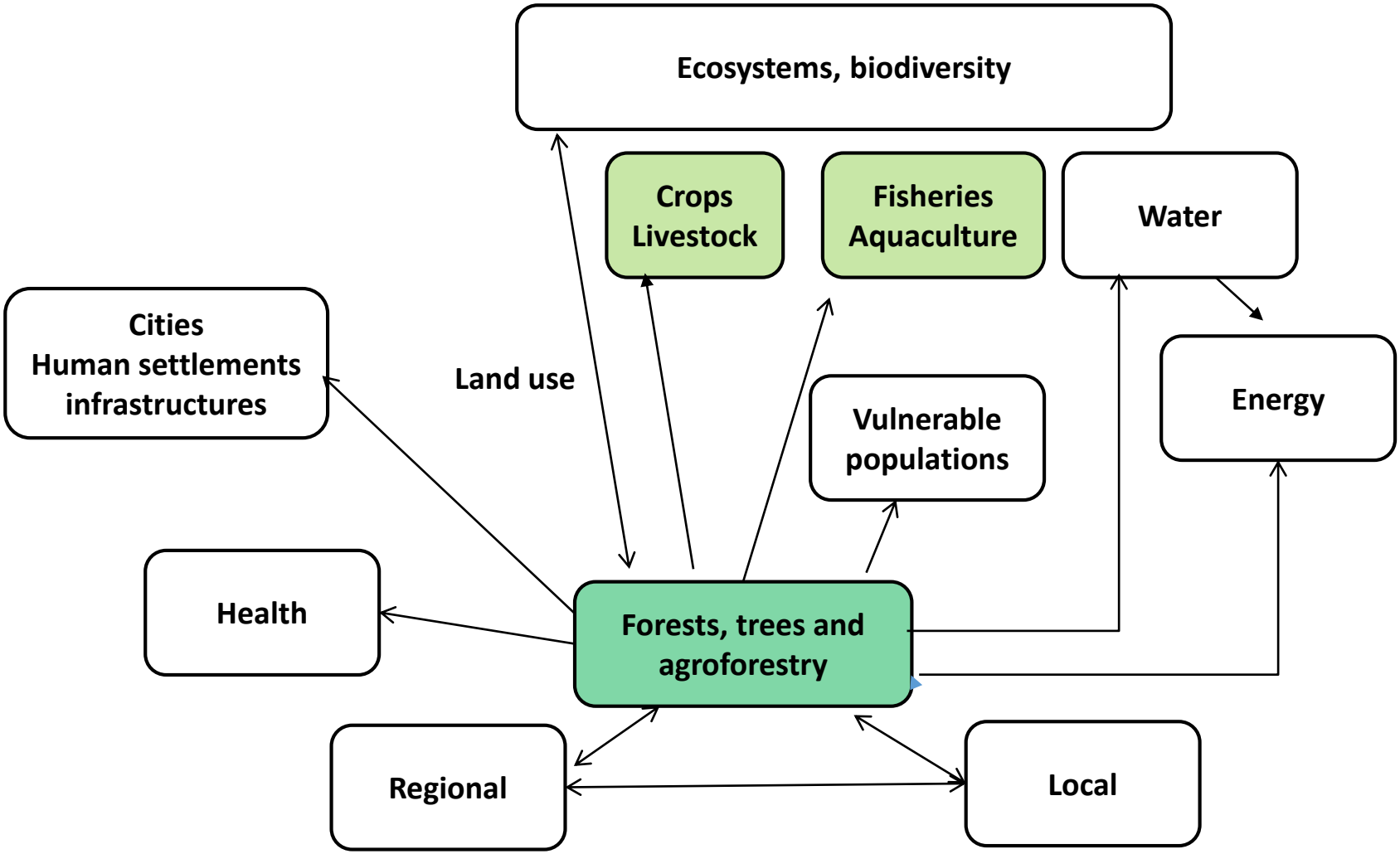
- Selection and breeding
- Social innovations
- Financial innovations

3) Forests and trees for adaptation



Mangrove Kubu Raya, West Kalimantan, Indonesia
Photo by Sigit Deni Sasmito/CIFOR

Relations between «sectors»



What can forestry do for the adaptation of other sectors?

- Crops and livestock
- Fisheries and aquaculture
- Water
- Cities, human settlements, infrastructures
- Energy
- Health

Climate changes	Associated risks	Potential impacts on fisheries and aquaculture	Forest and tree-based solutions
Higher temperatures.	Evaporation	Less water available	Conserve and establish trees to provide shade along rivers, irrigation and water storage.
	Higher temperature of surface waters (rivers and lakes).	Fish mortality.	
More violent precipitations.	Increased erosion.	Degradation of fish spawning grounds. Degradation of water quality.	Conserve and develop forests in areas at the most risk of erosion.
	Floods.	Degradation of water quality.	Maintain and develop forest coverage in the water basin to facilitate infiltration in the soil and reduce running off.
Change of precipitations from snow to rain.	Changes in river flows; more variability in flows.	Floods "flushing" of spawning grounds.	
Sea level rise.	Mangroves at risk.	Degradation of habitat, critical for fish reproduction.	Protect and restore mangroves.

Meybeck et al. 2020

Planting trees for adaptation (NAPs)

1) **For natural resources management**, for instance to:
- restore degraded land,
- reduce soil erosion,
- restore water catchments,
- protect water tanks and rivers (against erosion and evaporation)
- reduce coastal erosion and protect against storms.

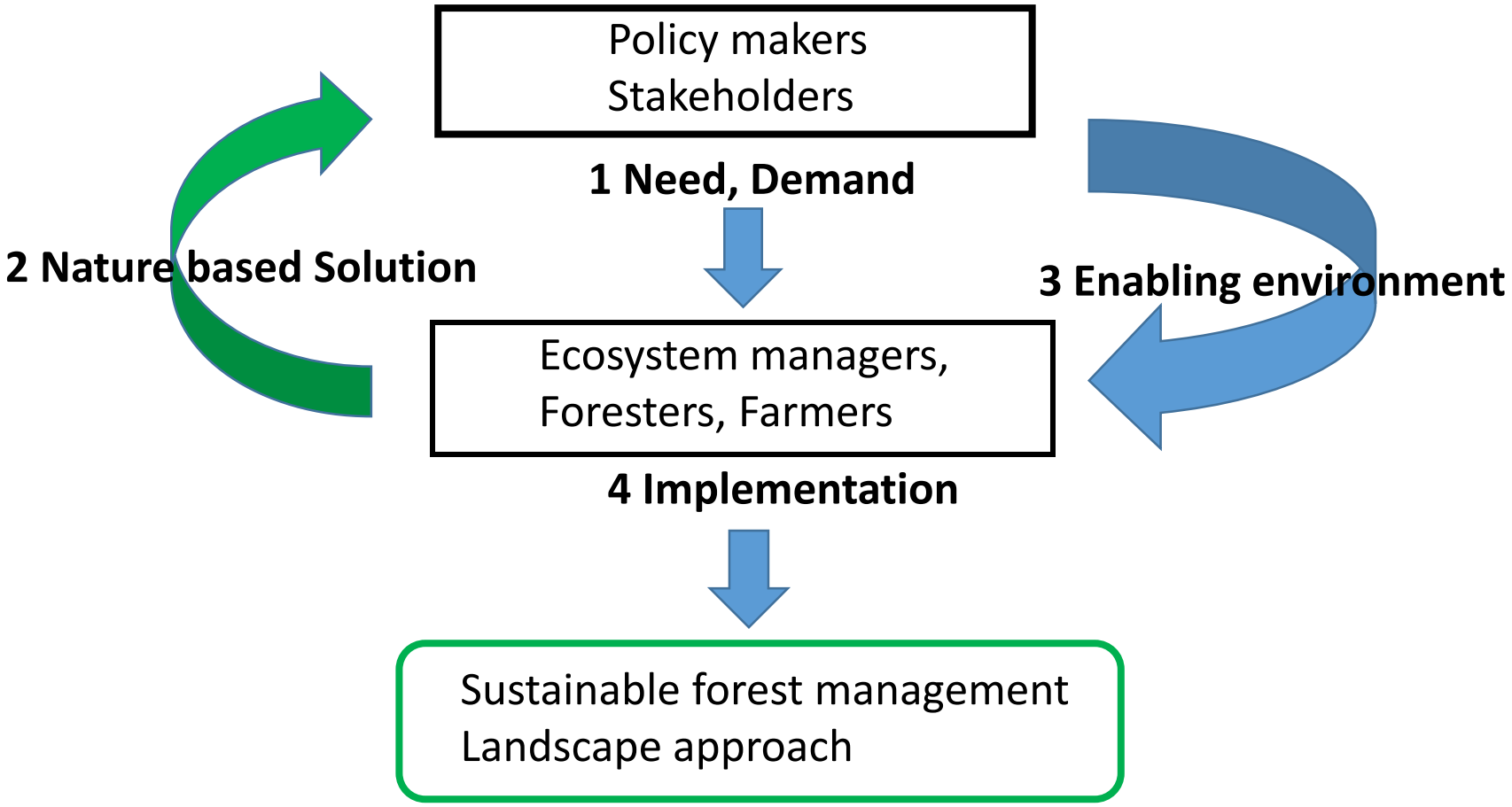
2) **In agriculture**, with:
- wind breaks,
- shade trees
- agroforestry in general.

3) **For the protection and greening of cities** to:
- reduce the urban heat island effect
- But need to manage increased fire risks.

- Agroforestry (NAP Kiribati, many NDCs)
- Agroforestry policy India, Nepal,
- ASEAN Guidelines for Agroforestry Development

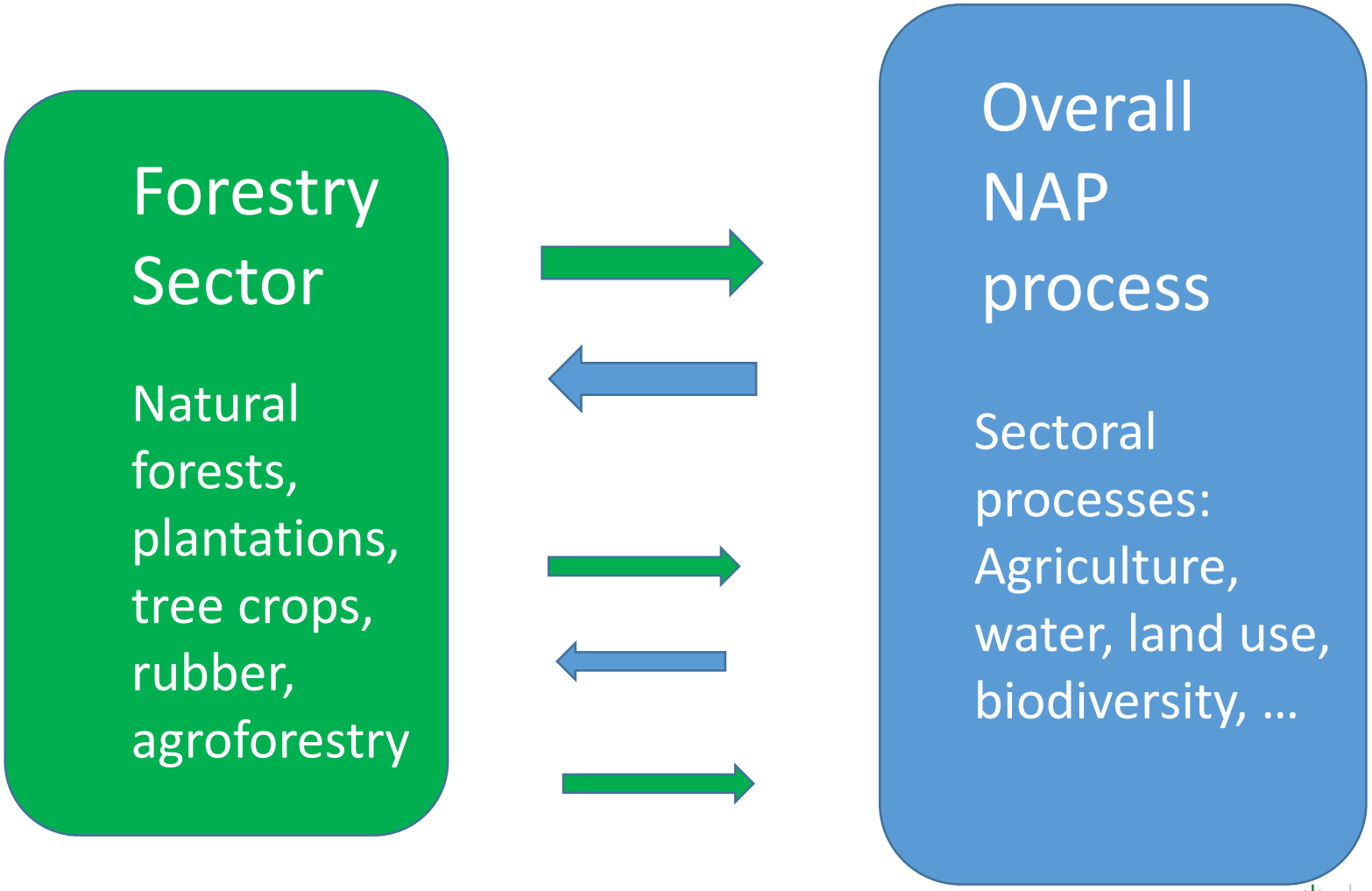
- Rubber, tea, cashew in Sri Lanka NAP: germplasm, management, pest monitoring, research, capacity development
- Rubber development for diversification, shade and socio-economic resilience

Nature Based Solutions: a four steps process



Gitz & Meybeck, 2019

How to engage forestry in the NAP?



4) What is needed?

- **Knowledge**
- **Enabling environment**
- **Capacity development**

Knowledge

- The NAP process shall be “guided by best available science” (UNFCCC, decision 5/CP.17)

- Data, knowledge, information
- Research
- Costs and benefits of adaptation options
- Indicators of changes, of adaptation

- Importance of lessons learned
- Exchanges of information and knowledge to fill gaps
- Learn from regions already experiencing a situation or change that is expected in another region

Enabling environment

- **Policies**
- **Finance**
- **Governance**, including articulation of sectors, levels and transboundary issues (gentic resources, water management, biodiversity, risk management (fires, invasives, pests)…)

- **Planning**: **NDC**  **NAP**  **Projets**

Capacity development

- Capacity development one of the main expressed needs.
  - vulnerability analysis and climate risk assessments
  - inter-agency and cross-sectoral coordination
  - mainstreaming of climate change into policies and budgets
  - Awareness and knowledge exchanges
  - Research activities

- Knowledge and data gathering and transfer
- Technology transfer

5) What roles for AFoCO?

- **Knowledge**
- **Capacity development**
- **Cooperation**

Knowledge

- Facilitate exchanges of ideas, experiences and lessons learned
  - On technical issues, institutional arrangements, policies
- Identify priorities of its members, express demands to research
- Partner with scientific organizations, universities to
  - Gather data and knowledge
  - Fill knowledge gaps (costs and benefits, assesment of adaptation and co-benefits –mitigation and others)
  - Share evidence and knowledge (prepare or commission papers, workshops, on specific issues, ecosystems or measures; data base of measured impacts of cc and of measures, expériences, references,)
  - Identify indicators of change
  - Identify indicators of adaptation

Capacity development

- Organize, facilitate and support capacity building of different categories of actors, at different levels on different topics
- Organize and facilitate the creation of regional networks for sharing of knowledge and experiences
- Support countries in mainstreaming of adaptation and creation of related networks and institutions
- Support élaboration of plans

- Support and facilitate technology transfert and innovation

Cooperation

- Organize and facilitate cooperation among its members on adaptation related issues, for instance:
  - Collection and sharing of climate related data
  - Management of genetic resources
  - Management of water
  - Risk management, particularly of a transboundary nature (fire, invasives, pests and diseases)
  - Organization of value chains (adaptation, new value chains…)
- Facilitate the elaboration of common positions of its members on adaptation related issues

Some references

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http://foreststreesagroforestry.org/

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The CGIAR Research Program on Forests, Trees and Agroforestry (FTA) is the world's largest research for development program to enhance the role of forests, trees and agroforestry in sustainable development and food security and to address climate change. CIFOR leads FTA in partnership with Bioversity International, CATIE, CIRAD, ICRAF, INBAR and TBI.

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