

Ecosystem-based approaches to mitigation and adaptation at landscape and seascape scale: tools and dynamics



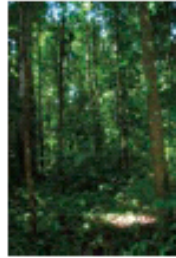
Ecosystems are fundamental to the objectives of the Convention

“to achieve.. stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner” **Article 2, UNFCCC**

Secretariat of the
Convention on
Biological Diversity

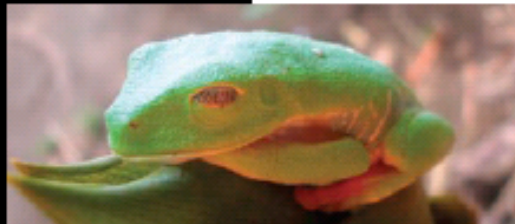
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CONNECTING BIODIVERSITY AND CLIMATE CHANGE MITIGATION AND ADAPTATION:

Report of the Second Ad Hoc
Technical Expert Group on
Biodiversity and Climate
Change



Maintain the resilience of intact natural ecosystems



Sustain the ecosystem services they provide, e.g. water, food carbon storage

Store
Capture

Protect
Provide

mitigation

adaptation



Maintaining healthy forests

Palas Valley, Pakistan



- Increasing frequency and intensity of natural disasters
- Preparation of new natural resource management plan for restoring and maintaining healthy ecosystems and maintaining services
- Development of new income sources from non-timber forest products
- Community governance of forests, enabled in national legislation

(Birdlife, 2009)

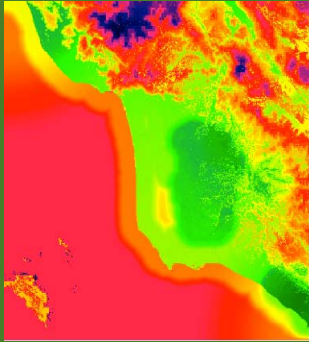
Resilience in practice: Tarobi Community Marine PA



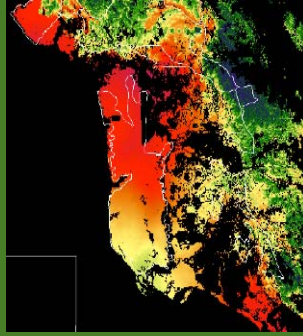
- Customary marine tenure
- Key sources of income
cacao, oil palm, coconut/copra,
fish and marine products
- Draws on traditional
management practices
- Continuous monitoring
between development
and protection
- Maximize long-term
benefits and minimize
natural resource loss

(The Nature Conservancy)

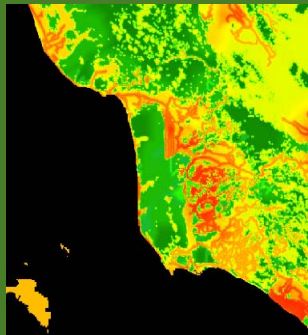
optimal use



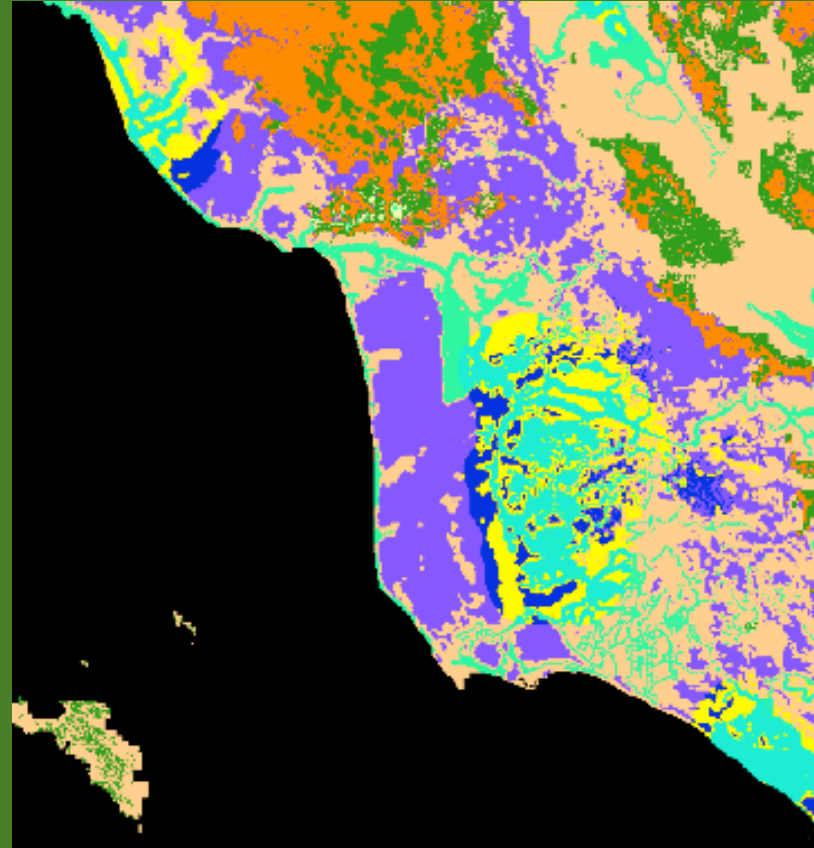
oil palm suitability



forest carbon

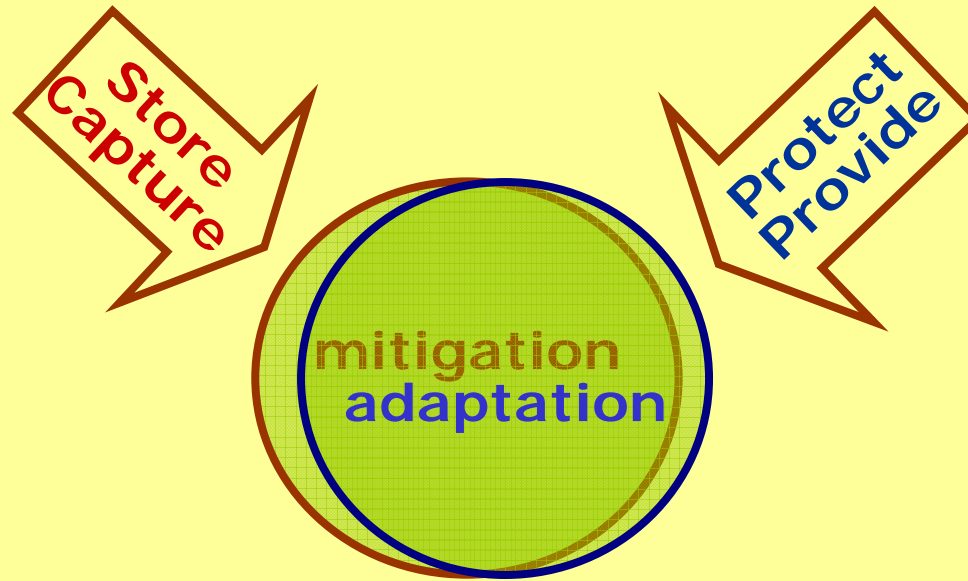


tiger habitat suitability



land use economics +
climate planning

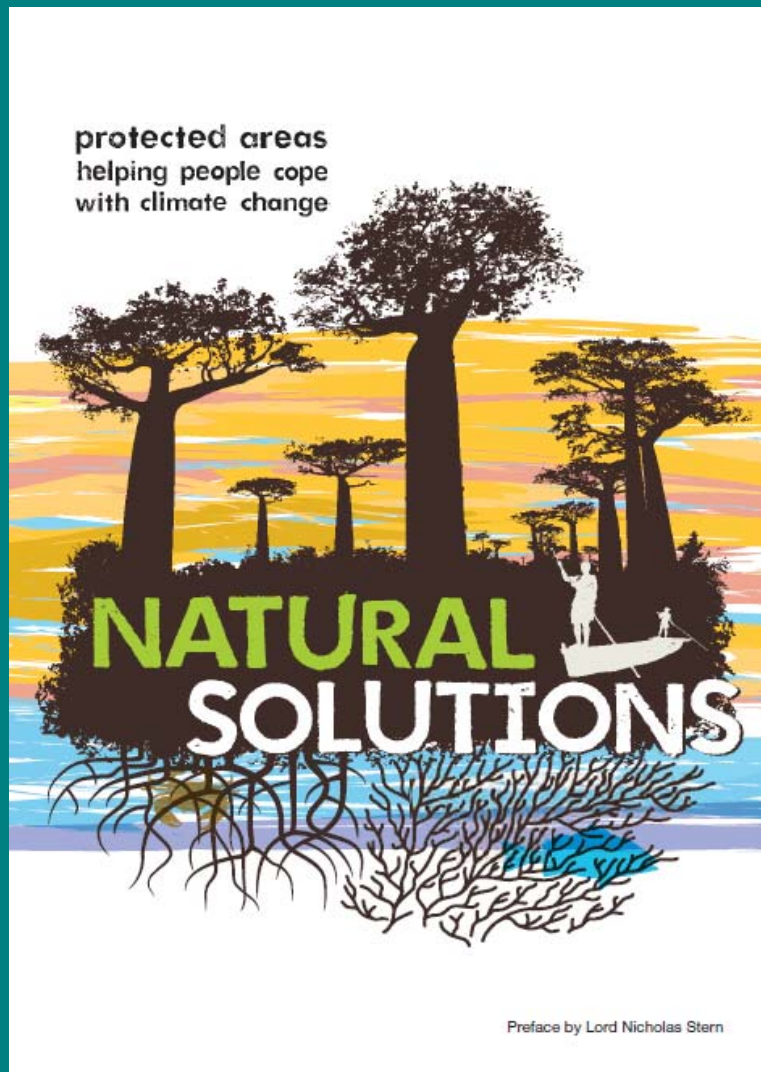




Effectiveness requires:
Governance and safeguards
Permanence
Effectiveness
Monitoring, reporting and verification

protected areas systems in the wider landscape/seascape across all management categories and governance types

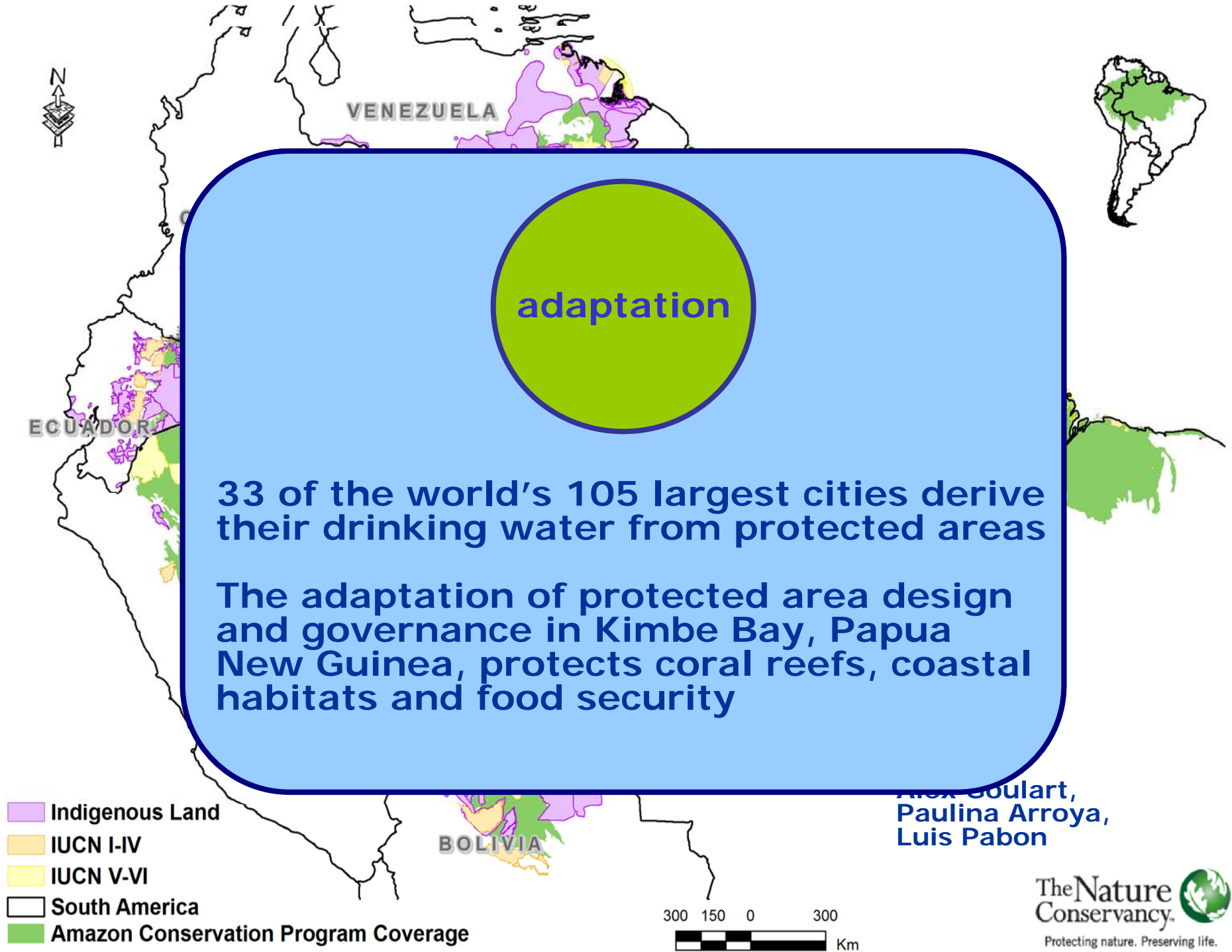
Natural solutions: the role of PAs



“This book clearly indicates for the first time how protected areas contribute significantly to reducing the impacts of climate change ...

...it is important that these messages reach policy makers loud and clear and are translated into effective policies and funding mechanisms”

**Preface by
LORD NICHOLAS STERN**



adaptation

33 of the world's 105 largest cities derive their drinking water from protected areas

The adaptation of protected area design and governance in Kimbe Bay, Papua New Guinea, protects coral reefs, coastal habitats and food security

**Alex Goulart,
Paulina Arroya,
Luis Pabon**

- Indigenous Land
- IUCN I-IV
- IUCN V-VI
- South America
- Amazon Conservation Program Coverage



Ecosystem-based adaptation

“Ecosystem-based adaptation is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change.

Ecosystem-based adaptation uses the range of opportunities for the sustainable management, conservation, and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change.”

Report of the CBD’s Ad Hoc Technical Expert Group on
Biodiversity and Climate Change

Promote resilient eco-systems

Maintain eco-system services

Support sectoral adaptation

Reduce risks and disasters

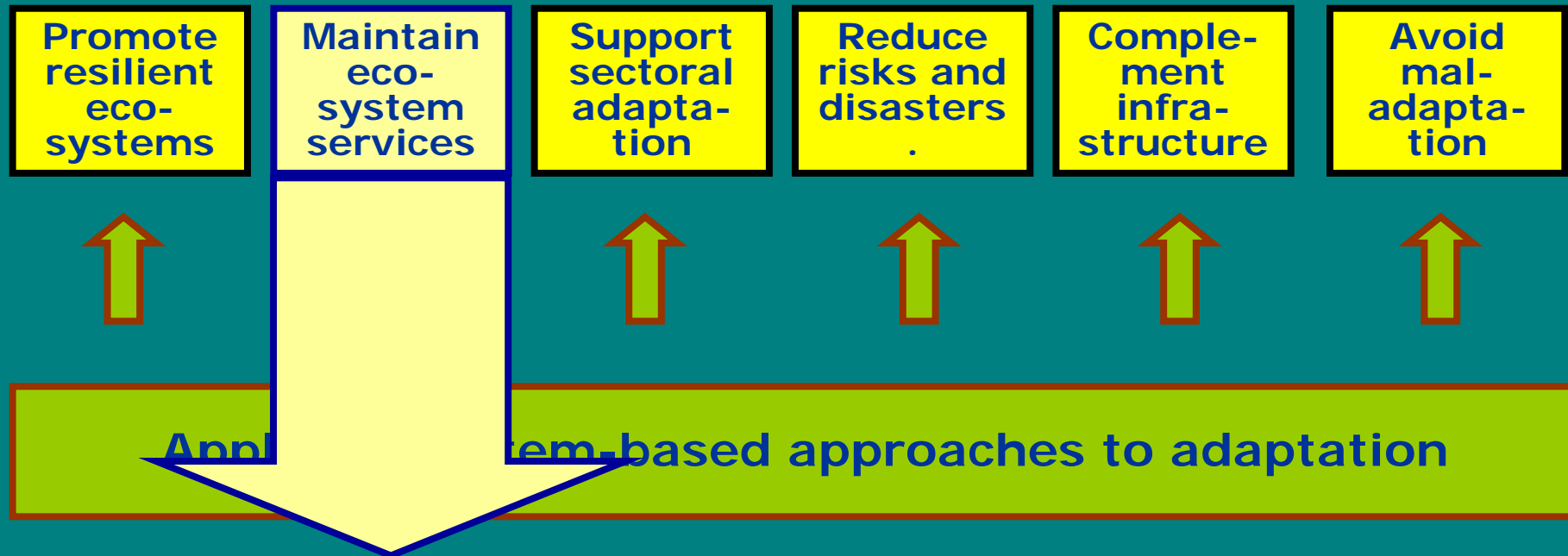
Complete infrastructure

Avoid mal-adaptation

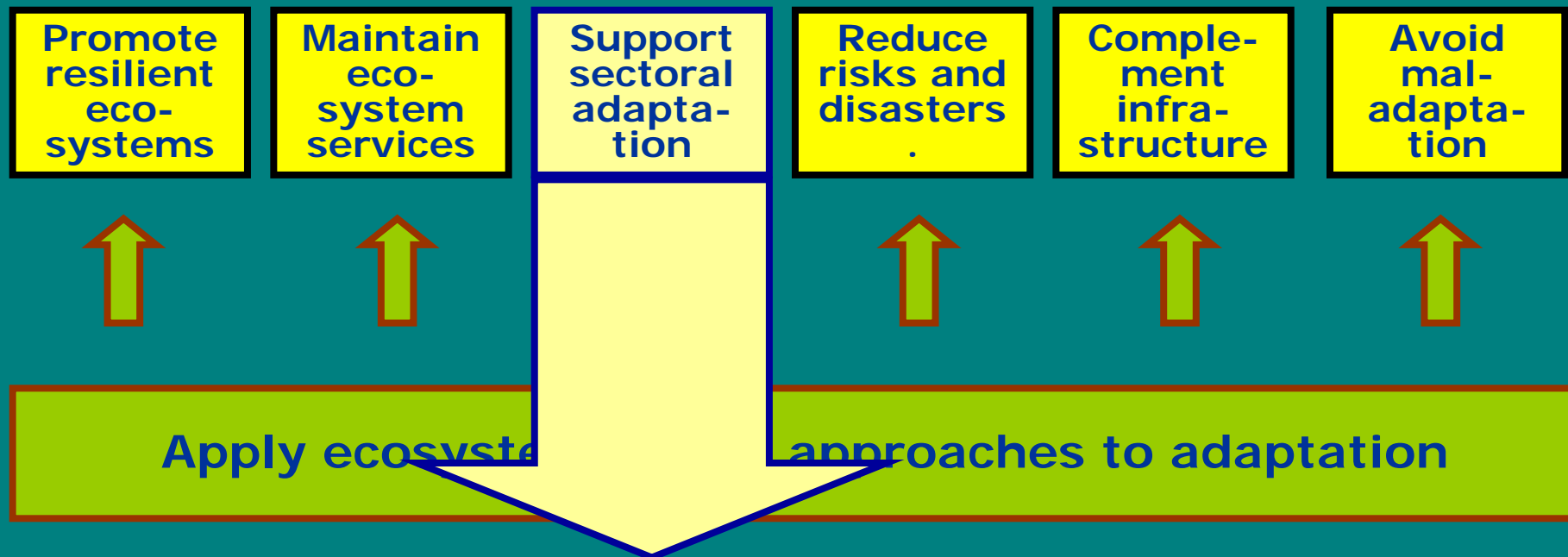


Only ecosystem-based approaches to adaptation

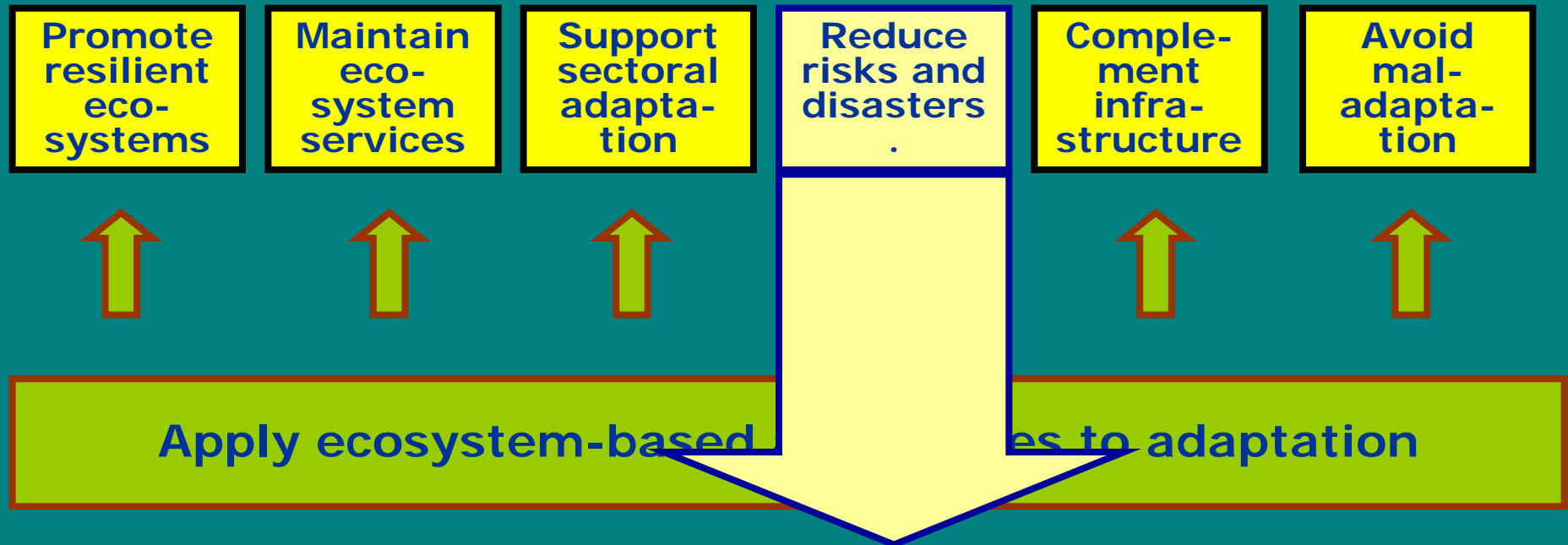
- Modeling of projected climate change
- Revised systematic conservation plans
- Revision of projected area system design
- Use of all PA governance types
- Involvement of local communities in restoration and management in PAs, buffer zones
- Adjusted management plans and programs



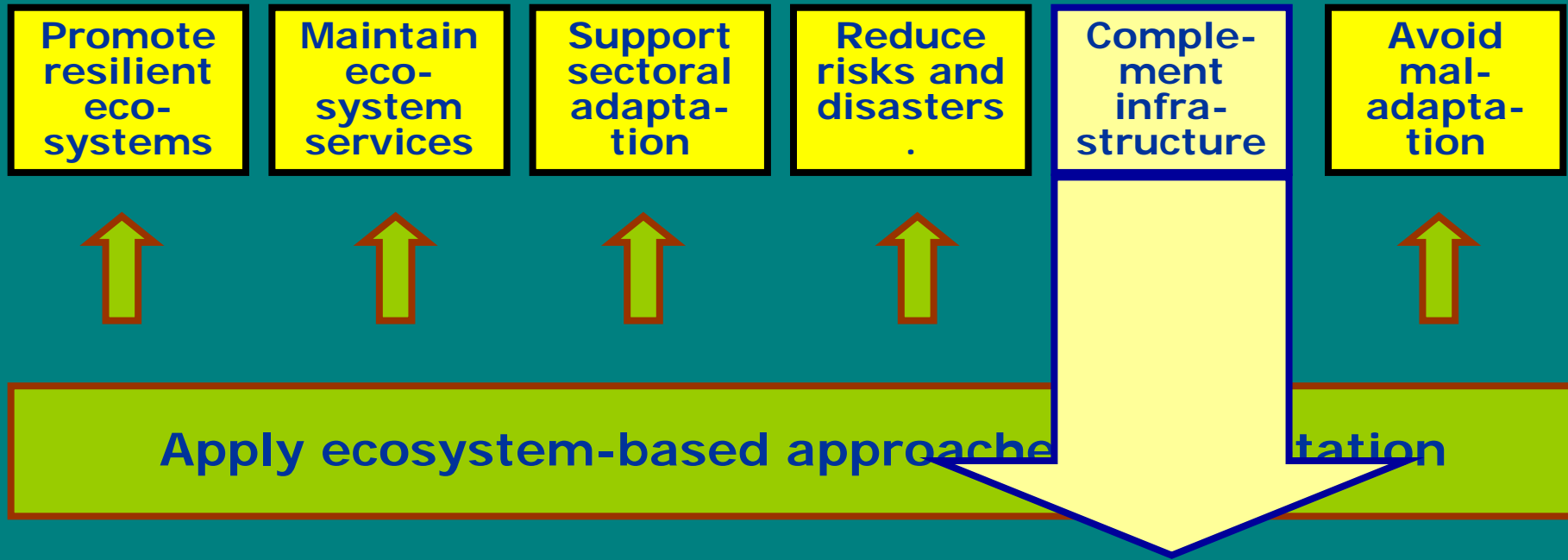
- Valuation of ecosystem services
- Assess impact of CC on ecosystem services
- Understand how users are affected
- Involve user communities in adaptation action involving ecosystem services



- Inclusion of ecosystem-based approaches in national adaptation plans;
- Incorporation of biodiversity into land-use management frameworks
- Influence sectoral development plans e.g. for agriculture or water production/adaptation
- Ensure adequacy of coastal zone management



- Restore key habitats that reduce vulnerability e.g. coastal wetlands, mangroves, forests on steep slopes
- Identify vulnerable communities and involve them in restoration efforts



- Maintain ecological flows in rivers – dam re-engineering
- Restoration of flood plains in for flood attenuation in addition to levees and berms;

Promote resilient eco-systems

Maintain eco-system services

Support sectoral adaptation

Reduce risks and disasters

Complete infrastructure

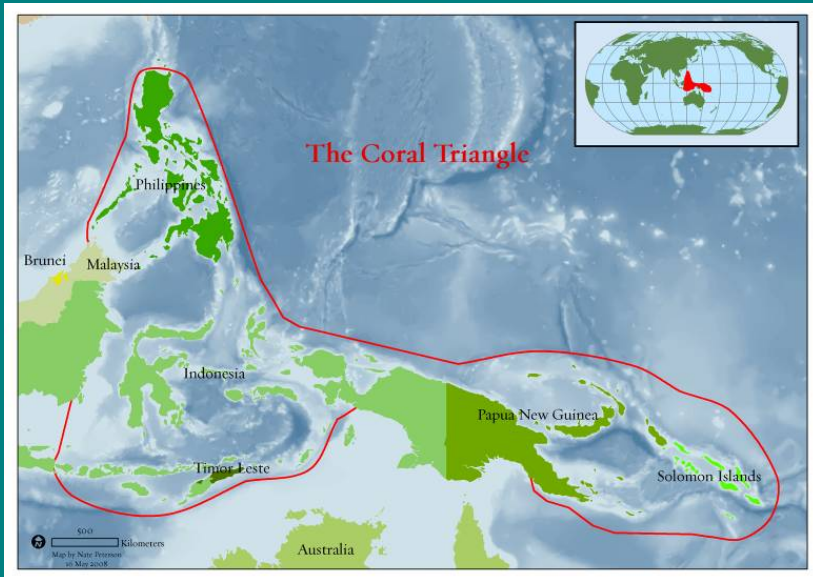
Avoid mal-adaptation



Apply ecosystem-based approaches to adapt

- Improve impact assessment to deal with impacts of adaptation activities on the natural environment
- Avoid inadvertent impacts on natural ecosystems, communities

Some considerations



We have to solve a simultaneous equation:
We have to determine the trade-offs between potential responses and achieve an optimal solution that does not undermine the prospects for long-term sustainability

