Natural Capital Approaches for Sustainable Development

Emily McKenzie
Chief Adviser, Economics and Sustainability
Outline

1. Natural capital and the SDGs
2. The case of Myanmar
3. What tools are available?
4. Natural capital in business decisions
Natural Capital and the SDGs
What is natural capital?

Natural Capital

is the **stock** of renewable and non-renewable natural resources, (e.g. plants, animals, air, water, soils, minerals) that combine to yield a **flow** of benefits to people.
Food, fuel, fiber

Pollination
Climate regulation
Coastal protection
Clean water
Spiritual Fulfilment

Pollination
Climate regulation
Coastal protection
Clean water
Spiritual Fulfilment
Multiple forms of capital

- Financial capital
- Manufactured capital
- Intellectual capital
- Human capital
- Social and relationship capital
- Natural capital

<IR> capitals framework
Millennium Ecosystem Assessment

- 60% of ecosystem services are being degraded or used unsustainably
- Degradation of ecosystem services causes significant harm to human well-being
Standards for the Private Sector
Sustainable Development Planning
Securing Freshwater
Sustainable, Livable Cities
Standards for the Private Sector
Safe, Resilient Coastal Communities

Working together to account for nature’s values, toward shared outcomes
THEORY OF CHANGE

Robust evidence of conditions for success

Create user-friendly approaches & tools

Build and tell success stories, engage leaders

Get information about natural capital into decisions

Make decisions with better outcomes for people and nature
Build and tell success stories

- Development Planning
- Securing Freshwater
- Sustainable, Livable Cities
- Standards for Private Sector
- Safe Resilient Coastal Communities
Informing a green economy in Myanmar

- Development Planning
- Securing Freshwater
- Sustainable, Livable Cities
- Standards for Private Sector
- Safe Resilient Coastal Communities
Natural habitat provides clean drinking water
Natural habitat provides water in the dry season.
Natural habitat helps reduce risk of flood
Coastal habitats protect populations

Role of habitats in reducing exposure

Distribution of Myanmar’s coastal population

Where coastal habitats provide the greatest benefits to the most people
Climate change impacts

- Sea level rise
  - Coastal erosion and inundation
- Increasing temperatures
  - Forest fires, drought, heat waves
- Changing precipitation
  - Increasing extremes
  - Water availability
Myanmar’s future climate risk (2040s)

Low

Change in Avg. Temp. (°C) 1 2 3 4

High

Change in Avg. Temp. (°C) 1 2 3 4

Low

Precipitation change (%) -20 0 20 40

High

Precipitation change (%) -20 0 20 40
Increased sediment export to dams under future climate scenario

**Current climate -> RCP 8.5**

<table>
<thead>
<tr>
<th>Dam name</th>
<th>Percent change in sediment to dam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaingni</td>
<td>18.5</td>
</tr>
<tr>
<td>Gyobyu</td>
<td>18.6</td>
</tr>
<tr>
<td>Kabo</td>
<td>24.7</td>
</tr>
<tr>
<td>Kinda</td>
<td>24.7</td>
</tr>
<tr>
<td>Kintat</td>
<td>28.6</td>
</tr>
<tr>
<td>Manchaung</td>
<td>22.3</td>
</tr>
<tr>
<td>Mobyte</td>
<td>25.7</td>
</tr>
<tr>
<td>Natmouk</td>
<td>24.4</td>
</tr>
<tr>
<td>Ngamoeyeik</td>
<td>18.8</td>
</tr>
<tr>
<td>Salin</td>
<td>23.1</td>
</tr>
<tr>
<td>Sedawgyi</td>
<td>25.2</td>
</tr>
<tr>
<td>Sunchaung</td>
<td>25.1</td>
</tr>
<tr>
<td>Tabuhla</td>
<td>18.6</td>
</tr>
<tr>
<td>Taungnawin</td>
<td>22.2</td>
</tr>
<tr>
<td>Thaphanseik</td>
<td>28.8</td>
</tr>
</tbody>
</table>

GRanD global dams database
Loss of sediment with increasing deforestation

Limited deforestation

Some deforestation

More deforestation

sediment export
percent increase

0 - 10
10 - 50
50 - 100
100 - 500
500 - 2000
Mainstreaming in policy and planning

Natural capital assessments
- Stocks and ecosystem services
- Serviceshed analyses
- Climate change

Capacity building and consultations
- Trainings
- Consultation meetings

Mainstreaming
- Green economy strategy
- Climate change strategy
- Infrastructure planning and design
- Regional/national land use planning
- Forest management plans
- National spatial database (OneMap)
How is information being used?

- Investment rules
- National accounting reform
- Trainings on EIA
- Road design
Incorporating natural capital information provides benefits across the development process:

- **National & Regional Planning**
  - Where would development be safest from environmental hazards?
  - Where do ecosystems help protect and secure existing or new development investments?
  - Where should new development be avoided to prevent loss of ecosystem services?

- **Sector-Based Planning**
  - How can natural capital be managed to reduce hazards and support success of the sector-based plan?
  - How can sector-level objectives be met with the lowest impact on ecosystem services?

- **Project Design & Alternatives Analysis**
  - Where can ecosystems reduce hazard risk, and how much is needed?
  - Where can nature reduce project engineering and maintenance costs?
  - Where should projects be located to minimize negative impacts to people?
  - Where should offsets be located to provide effective, efficient and equitable mitigation?

- **Offsets**
  - What losses of natural capital and ecosystem services will be caused by project development?
  - Are mitigation measures effectively compensating for negative impacts of development?

- **Monitoring**
  - Have there been any unexpected consequences of the project on natural capital or ecosystem services? If so, how can they be remedied?
Natural connections:
How natural capital supports Myanmar’s people and economy
Myanmar's Natural Capital
The Foundation for a Green Economy

Start Exploring

www.myanmarnaturalcapital.org
**Explore ecosystem services**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provide habitat for life on Earth</strong></td>
<td><strong>Provide clean water</strong></td>
<td><strong>Provide enough water</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduce the risk of flooding</strong></td>
<td><strong>Protect the coastline</strong></td>
<td><strong>Absorb carbon dioxide</strong></td>
</tr>
</tbody>
</table>
Explore – flood risk reduction

Flood Risk Reduction

**Flood Risk Reduction**
- The forests in the Falam, Hakha, Hkamti, Kale, Mawlaik, Mindat, Myitkyina, and Tamu districts are critical for reducing flood risk and severity for the greatest number of villages downstream that were affected by the 2015 floods. Only a small portion of these areas is protected.
- High values of increase indicate where natural vegetation can contribute the most to reducing flood risk and severity.

**Climate change & flood risk**

Flood Risk Reduction Villages

PROTECTED AREAS

FLOOD AFFECTED VILLAGES

FLOOD RISK REDUCTION

High values
Science Meets Art
Building local capacity
Working with many partners
Myanmar transport corridors
Combined ecosystem service provision
3 services
- Low
- Medium
- High
- China-Indochina Peninsula Econ Corridor (part)
- Kolkata to Kunming Road (part)
There are many different approaches to natural capital and a lot of work has been carried out already. The Natural Capital Protocol standardizes this into a single global framework.

What tools are available?
Harmonization

There are many different approaches to natural capital and a lot of work has been carried out already.
Natural Capital Project Toolbox

- InVEST: integrated valuation of environmental services and tradeoffs
- RIOS: resource investment optimization system
- OPAL: offset portfolio analyzer and locator
- MESH
- PyGeoProcessing
- Marine Planning Concierge

Download at www.naturalcapitalproject.org
4

Natural Capital in Business Decisions
Timeline

2005
- Millennium Ecosystem Assessment
- Natural Capital Project

2008 – 2010
- Ecosystem Services Partnership
- US National Ecosystem Services Partnership
- A Conference on Ecosystem Services (ACES)
- The Economics of Ecosystem and Biodiversity (TEEB)
- Wealth Accounting and Valuation of Ecosystem Services (WAVES)
- ProEcoServ

2012
- Natural Capital Coalition
- GLOBE Natural Capital initiative
- Natural Capital Declaration
- Natural Capital Leadership Compact
- UK Natural Capital Committee

2013
- The B Team
- Natural Capital Business Hub
- Natural Capital Leaders index
- World Forum on Natural Capital

2016
- Natural Capital Protocol
- Natural Capital Finance Alliance
- Private Sector projects
The Coalition is a collaboration representing all parts of society. Represent c.250 organizations, all working on natural capital.

**Purpose**
To mainstream the inclusion of natural capital in business decision making, harmonizing approaches and getting them to scale, quickly.

**Our Vision**
A world where business conserves and enhances natural capital.
The **Natural Capital Protocol** is a standardized framework for business to **identify, measure and value** its direct and indirect **impacts and dependencies** on **natural capital**.
A unique collaborative process

Developed the Protocol

Developed the sector guides, and managed the business engagement and pilot testing

The Coalition is hosted by ICAEW.
Leading companies tested the draft Protocol

Over 50 businesses contributed to the Protocol piloting program

Deep Dives
- Piloted the entire Protocol

Piloting companies
- Piloted different steps of the Protocol
The Coalition will develop new guides in partnership with sector initiatives and associations.
Acknowledgements

WWF
• Hanna Helsingen
• Nirmal Bhagabati
• Michele Dailey
• Jill Schwartz
• Sai Nay Won Myint
• Nasser Olwero
• Ryan Bartlett
• Kate Newman

Natural Capital Coalition
• Mark Gough
• Hannah Pitts

Columbia University
• Radley Horton
• Manishka De Mel

Natural Capital Project
• Lisa Mandle
• Stacie Wolny
• Perrine Hamel
• Mary Ruckelshaus
• Henry Borrebach
• Anne Guerry

Any many many more....
“Racing to a new prosperity.” China Daily USA 06/04/2014
(http://usa.chinadaily.com.cn/epaper/2014-06/04/content_17562090.htm)
The economic belt of the Silk Road or “One Belt” designates the land network of silk roads linking China to Europe. Reviving the ancient Silk Route is a very ambitious goal that will only be achieved through increasing cooperation between China and Europe.

This program aims to strengthen cooperation among states of the Greater Mekong subregion, in particular by developing transport (motorways, railways and air connections). This initiative will support trade between China and ASEAN members that are already bound by a free trade agreement since 2010. In China, the provinces of Yunnan and Guangxi are the most involved in this cooperation.
Dry season water provisioning by land cover to downstream households

- China-Indochina Peninsula Econ Corridor (part)
- Kolkata to Kunming Road (part)

Legend:
- High
- Low
Flood risk reduction by land cover

- Low
- Medium
- High

- China-Indochina Peninsula Econ Corridor (part)
- Kolkata to Kunming Road (part)
Flood risk reduction by land cover
(to 2015 flood-affected villages)

- None
- Low
- High

- China-Indochina Peninsula Econ Corridor (part)
- Kolkata to Kunming Road (part)
Sediment retention by land cover

- Low
- Medium
- High

- China-Indochina Peninsula Econ Corridor (part)
- Kolkata to Kunming Road (part)
Dry season water availability due to land cover

- **High**
- **Low**

- Purple: China-Indochina Peninsula Econ Corridor (part)
- Brown: Kolkata to Kunming Road (part)
Forests protect bridges by reducing soil erosion
Decision Making

The Protocol is a framework designed to help business generate trusted, credible, and actionable information for business managers to inform decisions.

What are the risks and opportunities to your business?

- Operational
- Legal and regulatory
- Financing
- Reputational and marketing
- Societal
What the Protocol does and does not do

The Protocol...

✓ Builds on existing tools, guides, methods and techniques
✓ Focuses on improving internal management decision making
✓ Provides a standardized process that is also flexible
✓ Provides a process to internally standardize the approach that you take

The Protocol does not...

✗ Seek to create new tools and methods
✗ Provide a framework for external financial reporting
✗ Explicitly promote specific tools, methodologies or approaches
✗ Necessarily produce results that are comparable within or between different businesses or applications
The Natural Capital Protocol Framework

PRINCIPLES: Relevance, Rigor, Replicability, Consistency