Investing in Natural Capital in Myanmar: what is at stake?
Towards a sustainable...

I) Agriculture

II) Management of forest capital

III) Management of water and fishery
I) Towards sustainable agriculture
I) Agriculture, core of Myanmar’s economy

Key numbers in 2010:
- Accounts for 36% of GDP
- Employs majority of labor force: 67%
- Generates 25-30% of export earnings

<table>
<thead>
<tr>
<th></th>
<th>Primary Industry</th>
<th>Secondary Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myanmar</td>
<td>47</td>
<td>57</td>
</tr>
<tr>
<td>Cambodia</td>
<td>-</td>
<td>56</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>-</td>
<td>61</td>
</tr>
<tr>
<td>Vietnam</td>
<td>50</td>
<td>39</td>
</tr>
</tbody>
</table>

Huge and various assets:
- **Area**: biggest country in SEA
- **Geographical location**: between 2 enormous markets (China and India)
- **Topography**: very diverse, which allows diversified crops
- **Remarkable resource endowments**: water will be a considerable asset in the next decades, due to the unavoidable future water scarcity in SEA
- **Labor**: less expensive than in surrounding countries
I) However, this sector underperforms

<table>
<thead>
<tr>
<th>Country</th>
<th>Agriculture income ($ per year)</th>
<th>Poverty (% under 1.25$ per day)</th>
<th>Malnutrition (% children underweight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>6680</td>
<td>&lt;1</td>
<td>13</td>
</tr>
<tr>
<td>Philippines</td>
<td>1119</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Indonesia</td>
<td>730</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Thailand</td>
<td>706</td>
<td>&lt;1</td>
<td>7</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>507</td>
<td>43</td>
<td>41</td>
</tr>
<tr>
<td>Cambodia</td>
<td>434</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>Vietnam</td>
<td>367</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td><strong>Myanmar</strong></td>
<td><strong>194</strong></td>
<td><strong>26</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

Despite all its assets and its crucial importance for Myanmar economy, the agricultural sector underperforms... why?
I) Failures affecting the agricultural sector

1) Highly skewed land distribution

Ratio of landless rural households:
- Delta region: 65%
- Dry zone and hilly regions: 35%

➔ Intermittent wage Labor ➔ Food insecurity

2) Underinvestment in agricultural research

Average investments in improved varieties, crop and post-harvest management practices:
- In Asia: 0.41$ out of 100$ of agricultural income
- In Myanmar: 0.06$ out of 100$ of agricultural income

➔ only 20% of the average Asian investments

➔ These investments are key to increase agricultural productivity
I) Failures affecting the agricultural sector

3) Poor water control in the presence of climate change effect

Myanmar being the second country the most exposed to climate change

➔ Unpredicted droughts have huge adverse consequences on yields

4) Weak agricultural finance institutions and rural household indebtedness

Agricultural sector=36% of GDP and 67% of Labor
But only 2.5% of the loans in Myanmar are dedicated to agriculture!

➔ Interest rates=7% per month
➔ Household indebtedness
I) The illusion of export-oriented intensive agriculture

The GMO have prioritized large-scale commercial farming. Why is this dangerous?

The curse of intensive agriculture:
Intensive use of fertilizers and pesticides
→ very costly
→ need to produce more
→ need to buy more inputs and mechanization technologies
→ more costly, more debt
→ need to produce more
→ supply rises
→ price decreases
→ need to produce more ...

Huge adverse effects
- Farmers' poverty, debt, depression
- Agricultural production is export-oriented: don’t address the national consumption needs
- Soils' productivity decreases
- Food insecurity in rural areas
- Land grabbing by big agri-business
I) The curse of intensive agriculture: lessons from Cambodia

Cambodia has engaged in large land concessions, under its Economic Land Concessions Policy, for over a decade in an effort to attract investment into the agricultural sector.

BUT:
With poorly defined land rights, the results are:

- Land conflicts, massive displacements

- One of the highest deforestation rate in the world

Conclusion: the use of large-scale land concessions is very risky: economic, social and environmental risks
I) Green solutions

Productivity issues (1/3)

Green agriculture provides a wide range of innovative and cost-effective methods to increase productivity

Appropriate seeds and varieties
- Since 1990s: introduction of High Yielding Varieties
- BUT: non adapted to local conditions, requiring massive inputs of chemical fertilizers and pesticides → failure and « tired soils »
- NEEDED: Promotion of traditional varieties and informed choice

Nutrients and soil management
- Synthetic fertilizer use for higher yields
- BUT: low yields, soil structure and ecosystems functioning perturbation, “tired soils”, increase of costs for farmers
- NEEDED: Crop rotation (high yielding and leguminous species) and green manure, compost, animal manure, tillage avoidance, biofertilizers
I) Green solutions

Productivity issues (2/3)

Green agriculture provides a wide range of innovative and cost-effective methods to increase productivity.

**Integrated Pest Management (IPM)**
- Synthetic pesticides to initially increase productivity
- BUT: sanitary and ecological effects, massive infections
- NEEDED: IPM: resistant varieties adapted to local context, appropriate quantity use, farming practices to face infections and biological or mechanic control techniques

**Climate change adaptation**
Myanmar's agriculture already strongly affected by cyclones.
- Temperature increase will have an important effect on yields: +1°C → -10% of productivity
- NEEDED: appropriated varieties to face climate change impacts (salinity, floodings, droughts etc.), infrastructure building, sustainable water management, planting practices
I) Green solutions

Productivity issues (3/3)

Green agriculture advocates the development of small farming combined with high value crops

Counter-intuitive - but true- FACT:

Small farming’s productivity is higher than large farming’s!

This, for various reasons:

- More flexible in using Labor for a variety of tasks
- Reduced Labor supervision and low management costs
- Household farming always comes with outstanding management efficiency
- Few economy of scale in agriculture: many products are scale-neutral
- Small farming comes with high-value crops
I) Fact: Green agriculture offers many business opportunities

Preferring higher value final products!

Food processing and food retail industry

- Simple changes such as canning, fruit drying, packaging and labeling can dramatically increase the added-value of the product

- Good for inclusive growth because high employment multiplier (2.5 times higher than for other manufacturing sectors according to WB)

E.g.: Sesame
Myanmar is the world’s largest sesame producer. Possibility of capturing high-value markets by producing more value added products such as cold pressed sesame oil, roasted sesame for the Japanese and Korean markets and branded pure oil for domestic markets.

From raw primary products...

...to quality value-added processed products
I) Fact: Green agriculture offers many business opportunities

Quality labels: fair trade, organic agriculture

- Better quality crops at a higher price: target a market niche

**Organic labels**

**Organic Labels Federations**
Rules to respect in order to be a member of the federation:
- Use of chemicals (fertilizers) from natural origins
- Prohibition of chemical inputs
- Moderate crop rotation

**“Well Reasoned” Agriculture Labels**
Less restrictive than organic labels:
- Can use chemicals (fertilizers) inputs depending on a plant protection risk assessment
II) Fact: Green agriculture offers many business opportunities

Diversification of rural incomes
Ecotourism at the farm: what is done in France

« Accueil Paysan » (Welcoming Peasant) Label
Given by French Minister of Tourism, and Minister of Agriculture
To recognize hosting-tourists farms that use traditional methods, have quality products, and preserve the natural and cultural values of their region.
II) Towards a sustainable management of forest capital
II) Forests in Myanmar: a remarkable natural endowment

More than 50% of the Myanmar area is covered with forests (using a 50% threshold)

There is a lot to protect:

- 1709 known species of amphibians, birds, mammals and reptiles.
  - Of these, 4.7% are endemic and 5.9% are threatened.

- Myanmar is home to at least 7000 species of vascular plants
  - Of these, 15.3% are endemic
II) Yet, this capital is now threatened

Drivers of deforestation in Myanmar include:
- conversion for agriculture, both subsistence and industrial
- legal and illegal logging, including establishment of teak plantations
- various types of mining.

Myanmar lost some 1.4 million ha of forest since 2000, ranking it well behind Indonesia, but ahead of other Mekong nations, including Cambodia, Laos, Vietnam, and Thailand.
II) Yet, this capital is now threatened

In the 2000s, Myanmar deforestation accounts for 4% of the global deforestation
II) Recent initiatives to curb deforestation

In 2014, the Government and Parliament agreed on the ban of raw timber

**Fuel sticks and briquettes**
To prevent deforestation, the government is encouraging the production and utilization of fuel sticks and fuel briquettes made from paddy husk, saw dust and charcoal dust

**Improved cook stoves**
These stoves use fuel sticks an fuel briquettes instead of fuel wood, an can be built locally
2,000,000 have been distributed by GERES in the world

And, of course, REDD and REDD+ mechanisms...
II) Valuing the forest capital: REDD+

Reducing Emissions from Deforestation and Forest Degradation (REDD)

*Deforestation accounts for 20% of the global GHG emissions*

REDD is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development

"REDD+

Goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks

"Capacity Building for REDD+ activities", organized by ITTO and Moecaf from 15 June to 17 June, 2014
II) Valuing the forest capital: towards forest certification?

The **Forest Stewardship Council (FSC)** is an international not-for-profit, multi-stakeholder organization established in 1993 to promote responsible management of the world’s **forests**. Its main tools for achieving this are **standard setting**, certification and labeling of forest product.

Myanmar currently does not have any internationally recognized certification standard, such as FSC.

The forest management system in Myanmar does not differentiate the source of the timber – whether it originates from a natural forest, a plantation or an economic land concession.

This lack of clarity of data on timber origin presents a major obstacle for any certification scheme sin the country.
III) Towards a sustainable management of water and fishery
III) Managing water in a sustainable way

- Conduct Environmental Impact Assessment before the implementation of new dams.
- ➔ International Commission on Large Dams

Access to water in the Dry Zone is an issue ➔ Installation of water distribution systems are needed there
Three Gorges Dam (China) is the biggest in the world:

- 2335 m long and 140 m high
- 22500 MW
- Expected 84 TWh per year
- Huge human cost (>1.8 million people displaced) and monetary (>25 milliards $US)
- Huge environmental impacts

Should the same happen to the mythic and iconic Irrawaddy River, source of Burmese civilization?
Recent projects of development of small hydropower

- Past 5 years: 26 micro and 9 mini-hydropower projects developed by MEPE (Myanmar Electric Power Enterprise)
- Installed capacity: 24 kW to 5000 kW
- To improve social and economic conditions of poor rural households and remote communities
- To improve agricultural productivity

<table>
<thead>
<tr>
<th>Project</th>
<th>Installed Capacity (kilowatt)</th>
<th>Location</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mepan Chaung</td>
<td>1,200 (600 x 2)</td>
<td>Eastern Shan State</td>
<td>To supply electric power to Mong Hsat and Mong Ton towns</td>
</tr>
<tr>
<td>2. Tumpaung Hka Chaung</td>
<td>6,000 (2,000 x 3)</td>
<td>Kachin State</td>
<td>To supply electric power to Myitkyina and Waing-Maw towns</td>
</tr>
<tr>
<td>3. Kang Hkawng</td>
<td>1,200 (400 x 3)</td>
<td>Eastern Shan State</td>
<td>To supply electric power to Mong Hkak and Mong Yang townships</td>
</tr>
<tr>
<td>4. Kyu Hkak Chanung</td>
<td>320 (160 x 2)</td>
<td>North Eastern Shan State</td>
<td>To supply electric power to Kyu Hkak town and nearby villages in Muse townships</td>
</tr>
<tr>
<td>5. Nam Nae Sai</td>
<td>6,000 (2,000 x 3)</td>
<td>Eastern Shan State</td>
<td>To supply electric power to Tachileik town and also to export excess power to Thailand</td>
</tr>
</tbody>
</table>
Fishing areas are auctioned, giving rise to major operations around fixed nets pockets that require the use of small-scale fishers to carry the catch ashore.

For a family of small fishermen practicing subsistence fishing, access to common areas of fishing is restricted.

Another problem is the control of production by traders who farm out the fishing or make capital advances for the harvesting. They also control prices and distribution networks.
Direct market access is a burning issue as there is no equipment to maintain a cold chain, and major cities are at considerable distances.

During periods of fishery closure, inshore fishermen complain that large foreign ocean-going vessels are not controlled; they also operate close to shore, which causes conflict with local fishermen and limit their production.
Thank you!