LAO PDR
BASELINE PERCEPTIONS

Regional Workshop on SEA Baseline Assessment

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1. INTRODUCTION
2. THE KEY ISSUES OF THE SEA IMPORTANCE
3. NATIONAL SIGNIFICANCE OF THE ISSUES
4. PAST TRENDS, CURRENT AND FUTURES TARGETS OF EACH ISSUES
5. SCENARIO FOR FUTURE PROJECTIONS WITHOUT MAINSTREAM DAMS
6. CONCLUSION
Lao Peoples Democratic Republic

- **Area**: 236,800 sq km.
- **Population**: 5.6 million (2005).
- **GNP or GDP**: 491 US$ (2005)
- **Capital city**: Vientiane.
- **Bordering**: China, Myanmar, Thailand, Cambodia, and Vietnam.
- **Altitude**: 90 - 1500 m above MSL
- **Climate**: Tropical, monsoon.
- **Temperature**: 15°C to 38°C

**Mekong River**

- The world’s twelfth longest river, length of mainstream 4,825 km, runs through the Lao territory with a length of 1,865 km.
- The tenth largest in terms of annual flow with total drainage area 795,000 sq km.
- Runs through six countries: China, Myanmar, Lao PDR, Thailand, Cambodia and Vietnam.
- Lao people livelihood depend on the Mekong natural resources

**Sources**: JICA
The Baseline assessment focussed on the districts of Lao PDR with direct impact from the 11 mainstream hydropower dams.

Direct Impact is defined by three criteria:

1. **Reservoir Site**: District which will be inundated by a hydropower reservoir
2. **Dam Site**: District where a dam infrastructure (dam wall, transmission line, access roads, etc) will be located
3. **Down-Stream**: District located within a nominal 100km downstream from the foot of the dam.
53 districts in Lao PDR on border of Mekong mainstream.

Team collected baseline data information for 5 provinces:
- Bokeo
- Oudomxay
- Luangprabang
- Sayabouly and
- Vientiane

8 districts (Pahtha, Pakbeng, Nan, Sayaboury, Paklay, Med, Pakse and Kong)
THE KEY ISSUES OF THE SEA IMPORTANCE

- Socio-Economic
- Fisheries & Riparian Livelihood
- Bank erosion
Key issue 01: Socio-Economic
Gross Domestic Product (GDP) of Lao PDR and its growth rate during 1995-2005 are shown in graph below.

From 1990 GDP increased continuously by about 2.5 X

2005, GDP growth reached the highest rate of 7.3%.

GDP by sector in 2005,
- industrial sector 16.0% growth
- services sector 6.7%
- agricultural sector 2.5%
Gross Domestic Product of Lao PDR in 1990-2005 at 1990 prices

Sources: Lao PDR statistical yearbook 1975-2005, Notional Statistics Centre
Share of Lao PDR’s Gross Domestic Product by sector in 2000-2005
Socio-Economic – Mekong provinces

- All Mekong provinces show great increases in GDP and GDP/capita

- Agriculture and forestry
  - crops, river bank gardens, livestock and NTFP,

- Small and medium scale industry
  - food, construction materials and garment, and

- Small and medium scale services and trade
  - repair, agriculture marketing both domestic and export.
Main drivers for these trends are:

- Good price and good markets - domestic and export to neighbouring countries
  - Thailand, Vietnam, and China.
- Good demand for agricultural products, wood and NTFP.
- Improved road infrastructure, electricity network extension, water supplies, communications
Population in Mekong provinces 2008-2009

Sources: National Consultant field data collection 2009
Population growth rate and % poverty family in Mekong provinces

Sources: National Consultant field data collection 2009
Key issue 02: FISHERIES & RIPARIAN LIVELIHOODS
Fishery statistics only show commercial fish catch

Fish catch for household consumption not recorded

Importance of fisheries to livelihood is undervalued
Lao fisheries include:

1. Mekong fisheries (all year round)
2. Tributary fisheries (all year round, but esp. at flood season and transition)
3. Pond/aquaculture fisheries (all year round)

- Fishing gear includes gillnet, cast-net and through traps in tributaries & mainstream.
- Small scale fishponds for household consumption.
- Aquaculture in cages in main stream and tributaries.
## Fish caught in Mekong and Mekong tributaries

<table>
<thead>
<tr>
<th>District Name</th>
<th>Mekong (T/Yr)</th>
<th>Tributary (T/Yr)</th>
<th>Total (T/Yr)</th>
<th>Tributary Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paktha, BK</td>
<td>3.6</td>
<td>1.2</td>
<td>4.8</td>
<td>Nam Tha River</td>
</tr>
<tr>
<td>Pakbeng, BK</td>
<td>1.8</td>
<td>1.5</td>
<td>3.3</td>
<td>Nam Beng River</td>
</tr>
<tr>
<td>Nan, LB</td>
<td>9</td>
<td>1.2</td>
<td>10.2</td>
<td>Nan River</td>
</tr>
<tr>
<td>Sayaboury</td>
<td>1.8</td>
<td>1.8</td>
<td>3.6</td>
<td>Hounig River,</td>
</tr>
<tr>
<td>Paklay, SBR</td>
<td>3.6</td>
<td>1.2</td>
<td>4.8</td>
<td>Lay River, Phoun, Nham, and Nhang</td>
</tr>
<tr>
<td>Med, VTE</td>
<td>0.9</td>
<td>0.6</td>
<td>1.5</td>
<td>Med River</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20.7</strong></td>
<td><strong>7.5</strong></td>
<td><strong>28.2</strong></td>
<td></td>
</tr>
</tbody>
</table>

- In the study districts, Mekong fisheries accounted for 73% of total yearly fish catch
Estimates of district fish catch for Champassack

<table>
<thead>
<tr>
<th>Description</th>
<th>Champassack Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total annual production (ton)</td>
<td>12,749</td>
</tr>
<tr>
<td>Fish from developed ponds (ton)</td>
<td>2,090</td>
</tr>
<tr>
<td>Fish from natural ponds (ton)</td>
<td>2,646</td>
</tr>
<tr>
<td>Fish raising in fish cages (ton)</td>
<td>13</td>
</tr>
<tr>
<td>Fish caught from Mekong (ton)</td>
<td>8,000</td>
</tr>
<tr>
<td>Sales (ton)</td>
<td>10,118</td>
</tr>
<tr>
<td>% sale</td>
<td>80</td>
</tr>
</tbody>
</table>
Fishery in Mekong River and aquaculture ponds are one of the main livelihoods of farmers in all Mekong districts.

- Full time fishers keep 20% or less of their catch for consumption, and sell the remainder at market.
- Part time fishers may keep most of the catch for consumption.
Key issue 03: Bank erosion
Bank erosion: Vientiane case study

- Vientiane: located on an alluvial reach of the Mekong River
- Water levels fluctuate up to 10m between seasons
- Stream energy and the change in water levels cause bank erosion
- This affects:
  - households,
  - land property,
  - river bank gardens,
  - roads,
  - electricity infrastructure
Bank erosion: Vientiane Hydrograph


Source: JICA, 2001
Bank erosion: mechanism

- **Due to scouring at foot of riverbed**  
  (Most of the eroded vertical riverbank cliffs are of this type)
- Due to lowering river water level
- Due to slope failure
Bank erosion: impacts

- Severely eroded riverbanks form **Vertical Cliffs** mostly.
- Damage by the erosion extends to many facilities (such as road, houses, oil bases, factories, electric cables).
- Most critical stretches in Ban Hom was eroded 35m in 2003.
Total Project Cost: US $4.89 million
Total Length of Master Plan Projects: 7.38km
Implementation Schedule: 16-year (2005-2020)

Figure 1 General Layout of Riverbank Protection Master Plan
Bank erosion: Soda Mattress an environmental mitigation option

Soda (Fascine)

Taisya (Cross Twigs)

Kogui (Short Piles)
Bank erosion: Installation of Soda Mattresses

Rip rapping on Soda mattress

Installing foot protection Soda mattress

Placement Rip rapping on Soda mattress
Bank erosion: future trends

**Short term:**
- continuation of current trend,
- erosion has strong local impacts across sectors

**Medium term:**
- MRC predict that bank erosion may increase in both severity and extent in 20 years due to:
  - reduced sediment loads from Yunnan province
- Bank erosion can be a transboundary issue
CONCLUSION
CONCLUSION

- Mekong River is much more than water
- A way of life and a cultural foundation
- Dependence on fisheries for livelihoods
- River supports
  - agriculture, transport and tourism,
  - provides clean water
- Potential source of power to fuel economic development
Thank you very much for your kind attention.