

# LAO PDR BASELINE PERCEPTIONS

Regional Workshop on SEA Baseline  
Assessment

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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
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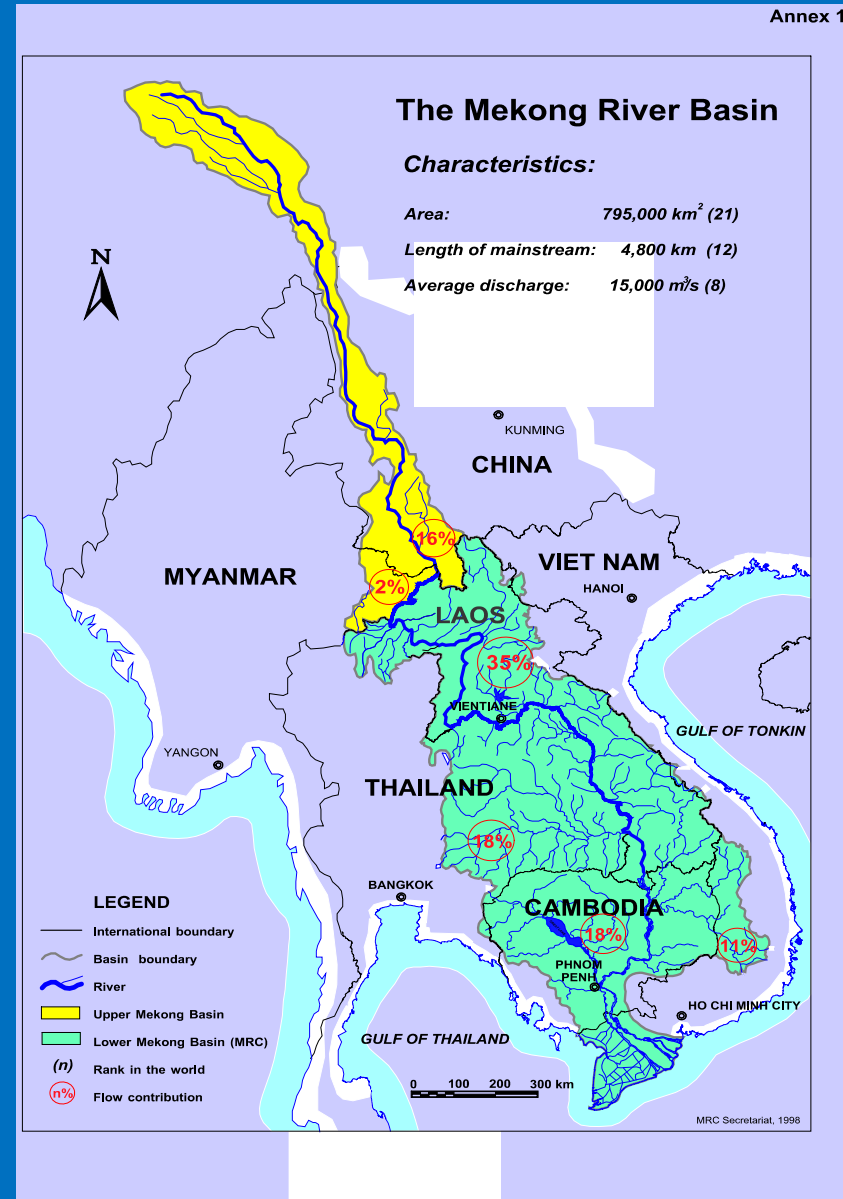
# INTRODUCTION

# 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

# INTRODUCTION

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- 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.

# BASELINE ASSESSMENT METHODOLOGY **Cont.**

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- 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 )

- Socio-Economic
- Fisheries & Riparian Livelihood
- Bank erosion

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# Key issue 01: Socio-Economic

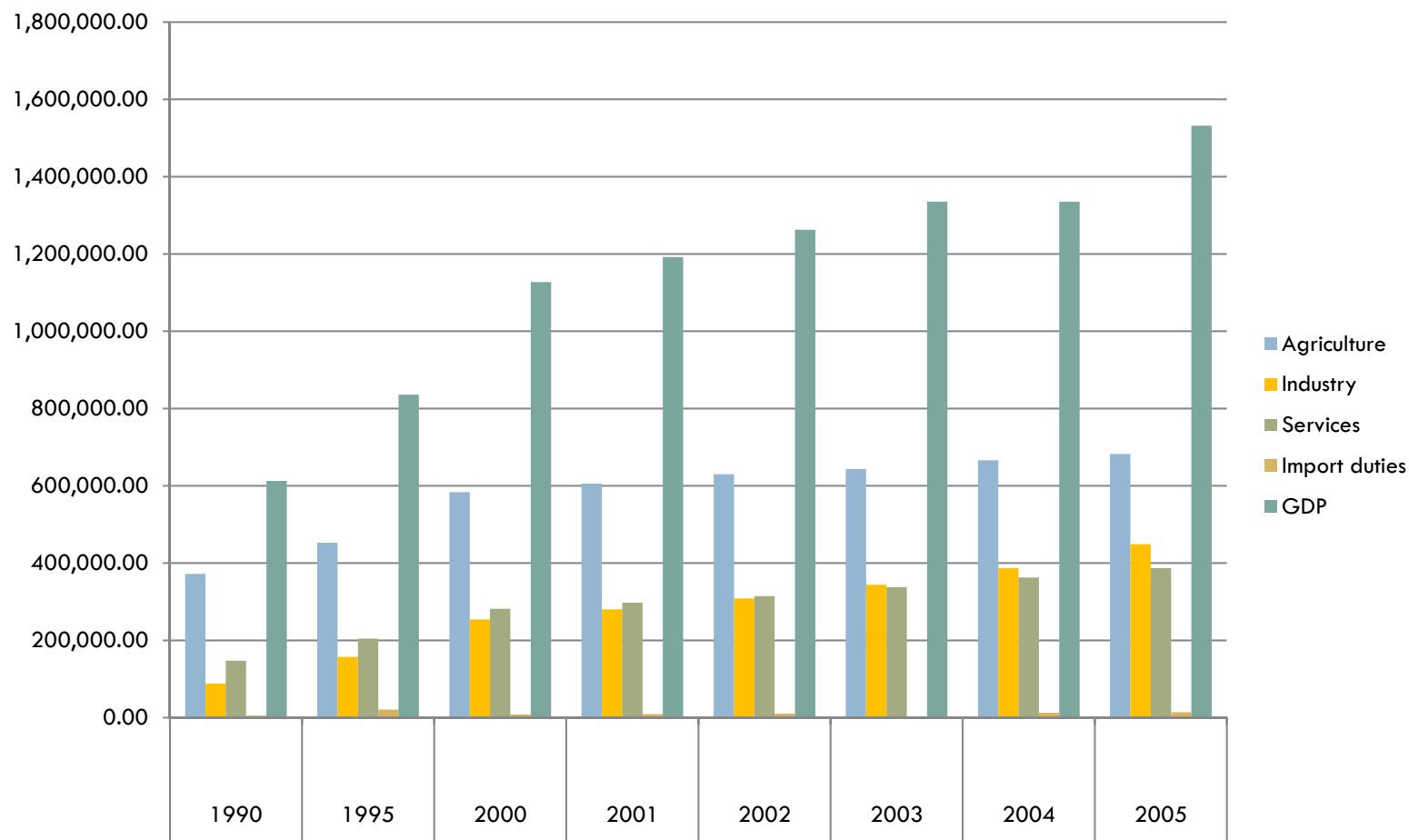


# Economic conditions (GDP) of Lao PDR

- 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%

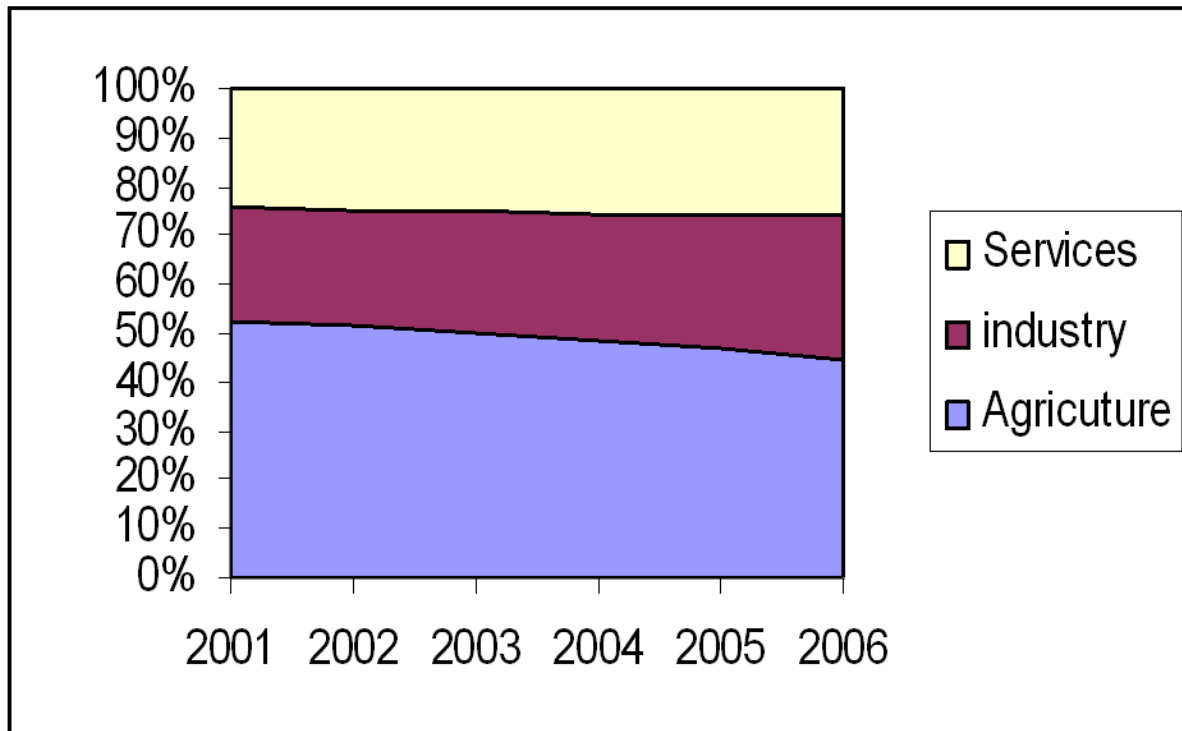
# Gross Domestic Product of Lao PDR in 1990-2005 at 1990 prices

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# Share of Lao PDR's Gross Domestic Product by sector in 2000-2005

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# Socio-Economic – Mekong provinces

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- 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.

# Socio-Economic – Mekong Provinces

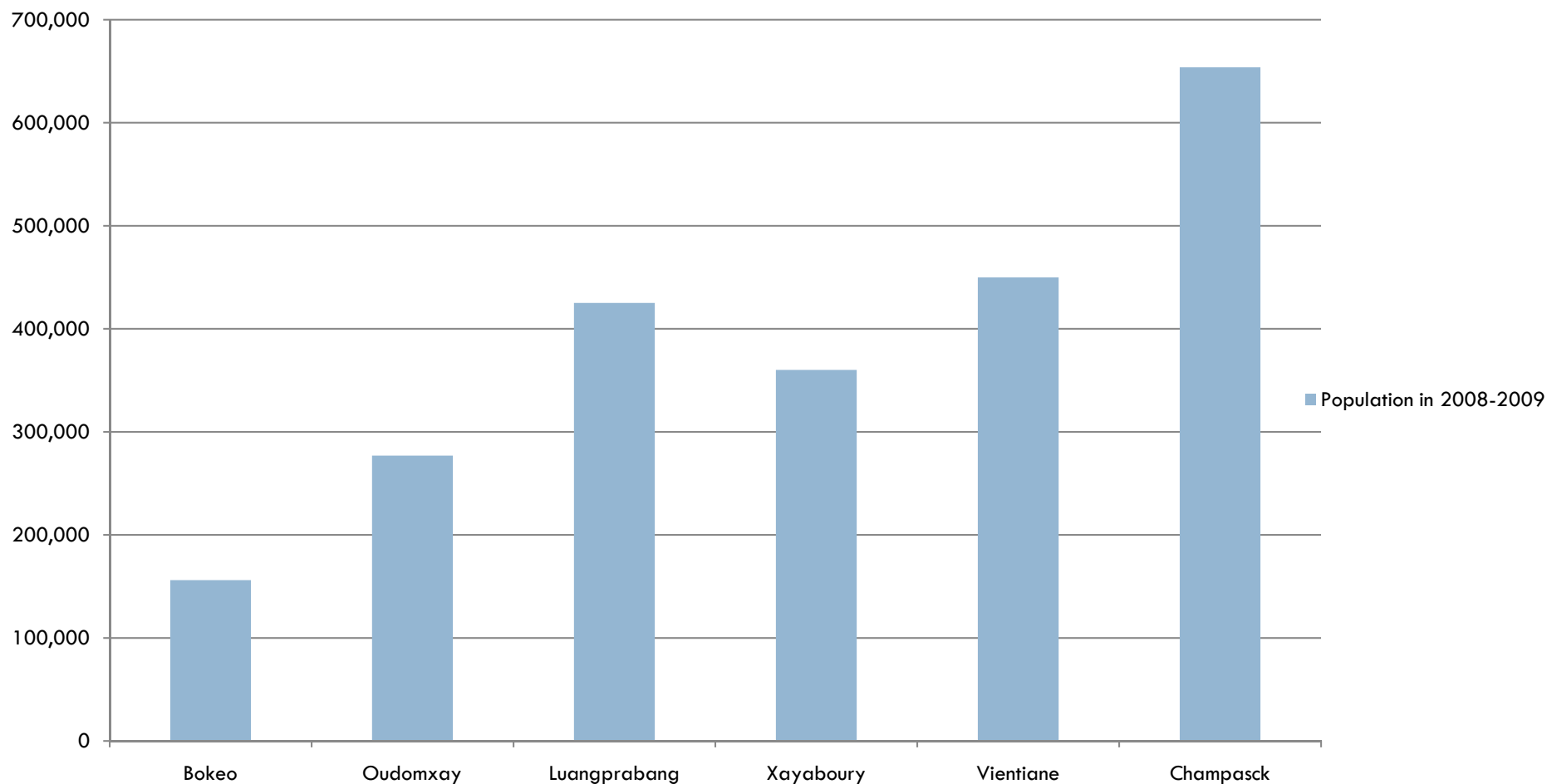
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- Main drivers for these trends are:
  - ▣ Good price and good markets - domestic and export to neighbouring countries
    - Thailand, Vietnam, and China.
  - ▣ Good demand for agricultural products, wood and NTFP.
  - ▣ Improved road infrastructure, electricity network extension, water supplies, communications

# Population in Mekong provinces 2008-2009

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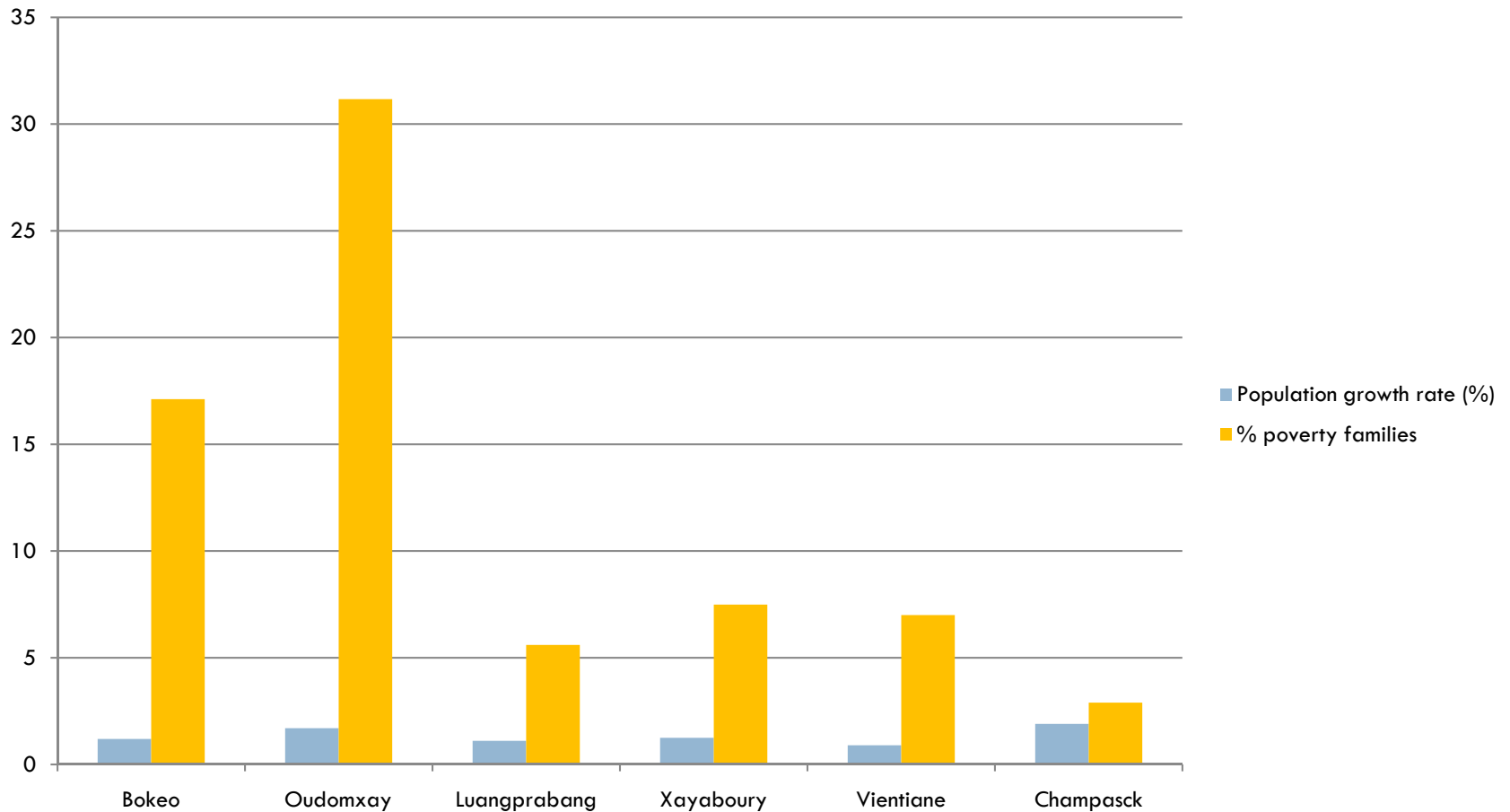
## Population in 2008-2009



Sources : National Consultant field data collection 2009

# Population growth rate and % poverty family in Mekong provinces

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Sources : National Consultant field data collection 2009

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## Key issue 02: FISHERIES & RIPARIAN LIVELIHOODS



# FISHERIES & RIPARIAN LIVELIHOODS

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- Fishery statistics only show commercial fish catch
- Fish catch for household consumption not recorded
- Importance of fisheries to livelihood is undervalued

# FISHERIES & RIPARIAN LIVELIHOODS

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## 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

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District Name	Mekong (T/Yr)	Tributary (T/Yr)	Total (T/Yr)	Tributary Name
Paktha, BK	3.6	1.2	4.8	Nam Tha River
Pakbeng, BK	1.8	1.5	3.3	Nam Beng River
Nan, LB	9	1.2	10.2	Nan River
Sayaboury	1.8	1.8	3.6	Houng River,
Paklay, SBR	3.6	1.2	4.8	Lay River, Phoun, Nham, and Nhang
Med, VTE	0.9	0.6	1.5	Med River
Total	20.7	7.5	28.2	

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

# Estimates of district fish catch for Champassack

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Description	Champassack Province
Total annual production (ton)	12,749
Fish from developed ponds (ton)	2,090
Fish from natural ponds (ton)	2,646
Fish raising in fish cages (ton)	13
<b>Fish caught from Mekong (ton)</b>	<b>8,000</b>
Sales (ton)	10,118
% sale	80

# FISHERIES & RIPARIAN LIVELIHOODS

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- 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.

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## Key issue 03: Bank erosion

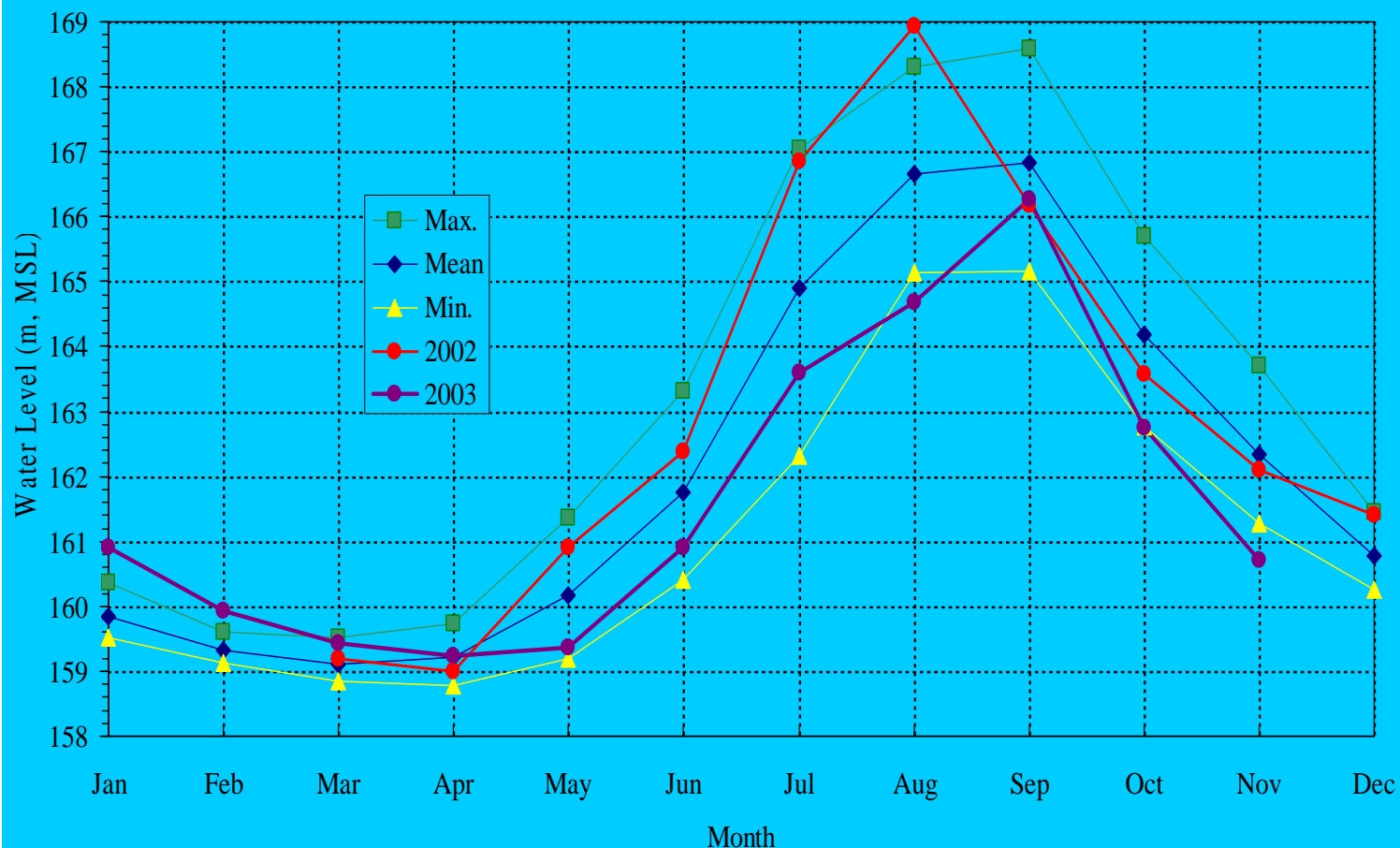
# Bank erosion: Vientiane case study

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- 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

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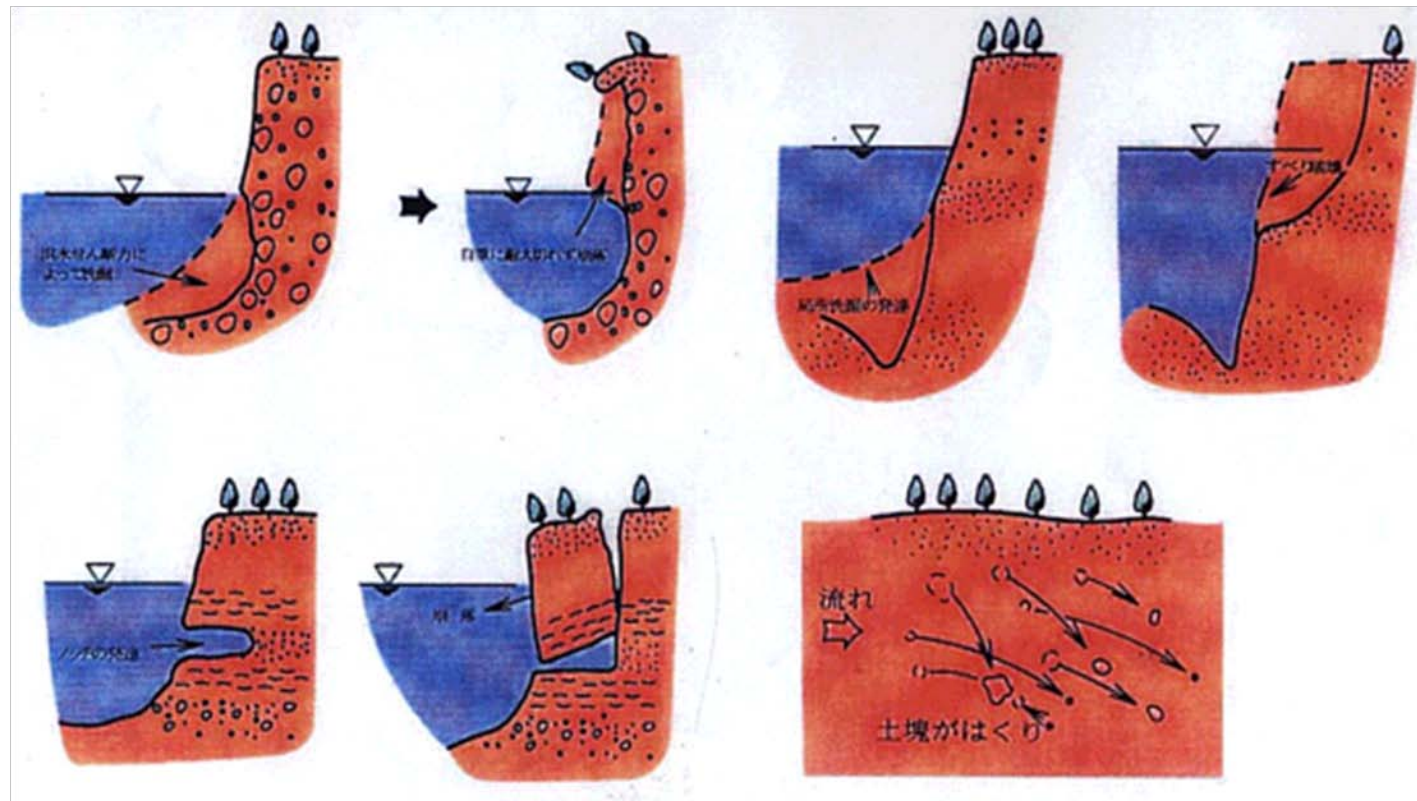
Monthly Average Water Level at KM4 in Vientiane (1992-2001)

Source: JICA, 2001



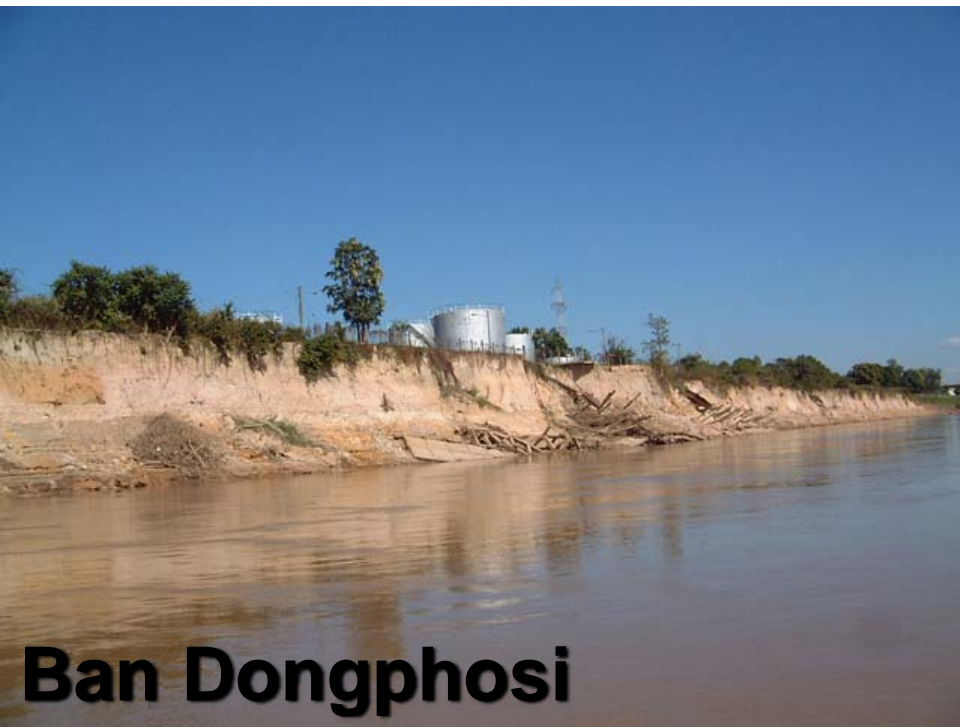
# Bank erosion: mechanism

- 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.

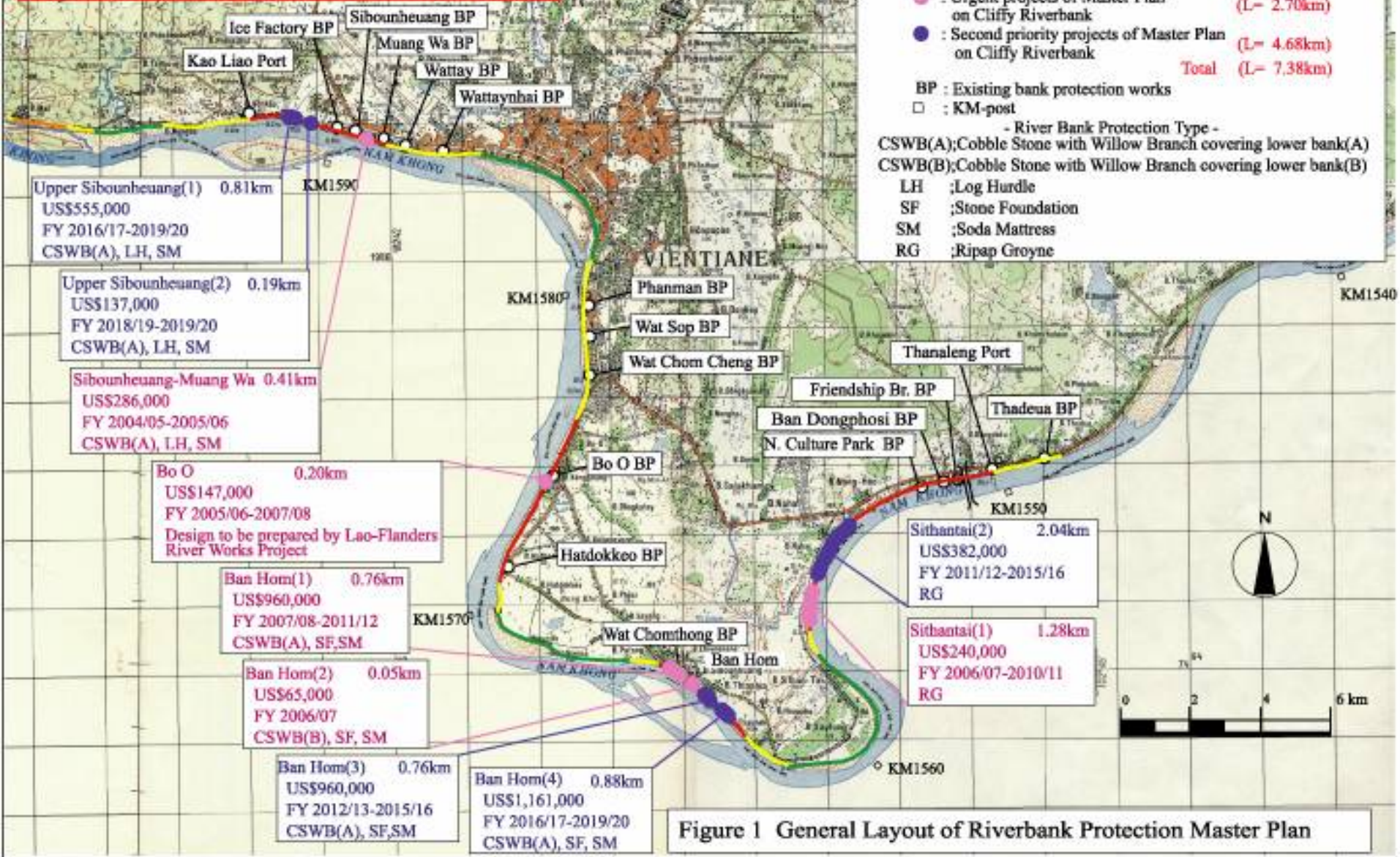


**Ban Dongphosi**

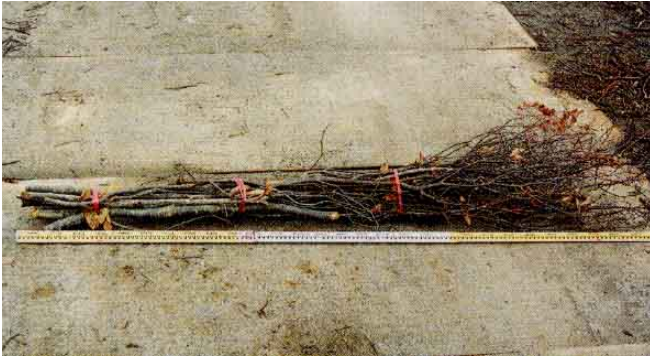


**Sibounheuang**

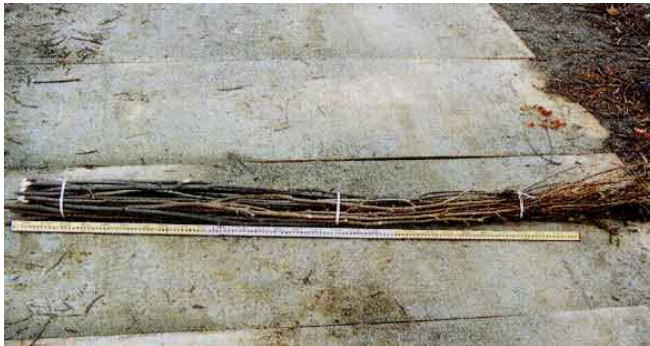
**Total Project Cost : US \$4.89 million**  
**Total Length of Master Plan Projects : 7.38km**  
**Implementation Schedule : 16-year (2005-2020)**



# Bank erosion: Soda Mattress an environmental mitigation option



Soda (Fascine)



Taisya (Cross Twigs)



Kogui (Short Piles)

# Bank erosion: Installation of Soda Mattresses



Installing foot protection Soda mattress

Rip rapping on Soda mattress



Placement Rip rapping on Soda mattress

# Bank erosion: future trends

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## **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 20years due to:
  - ▣ reduced sediment loads from Yunnan province
- Bank erosion can be a transboundary issue

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# CONCLUSION

# CONCLUSION

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- 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



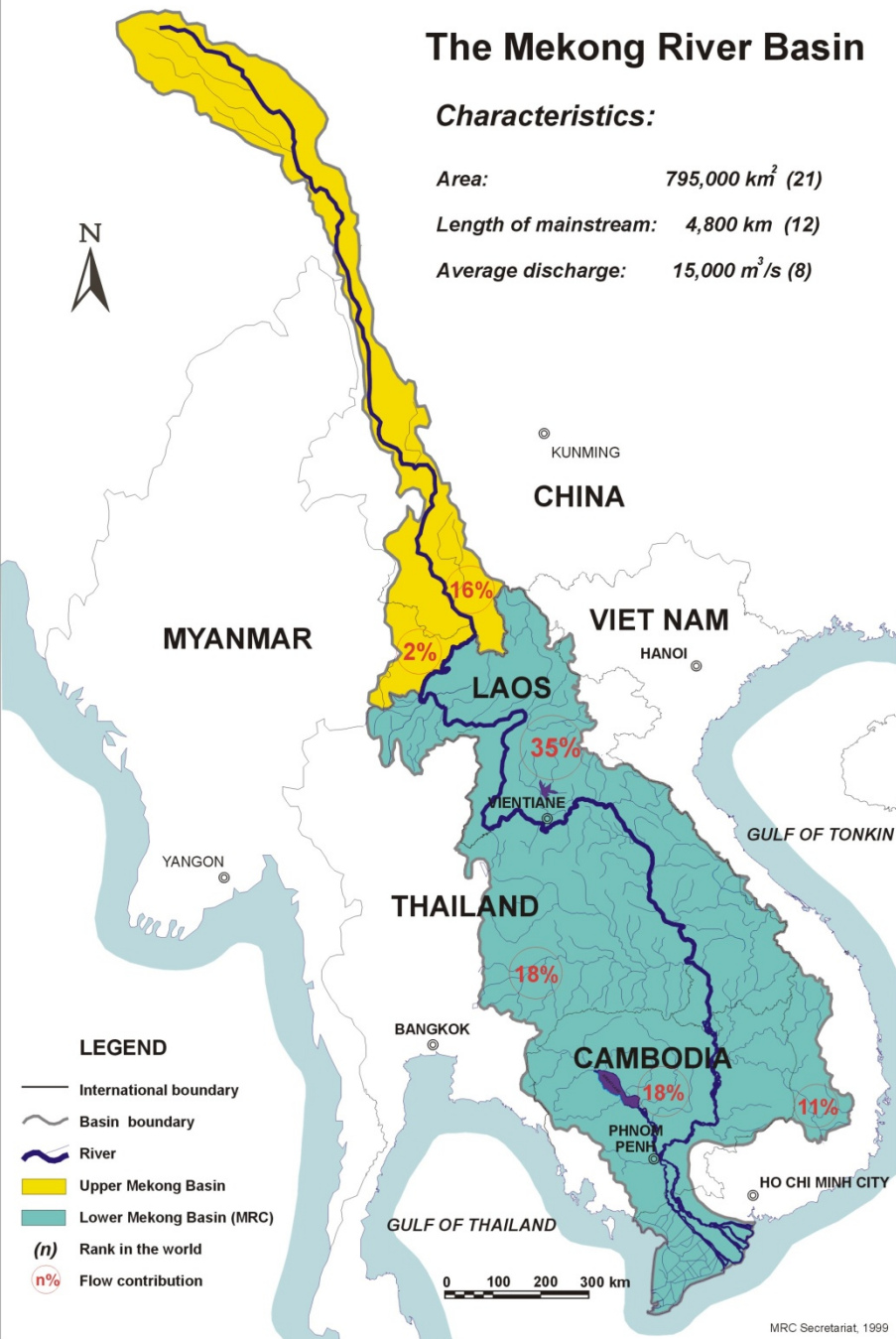
# The Mekong River Basin

## Characteristics:

Area: 795,000 km<sup>2</sup> (21)

Length of mainstream: 4,800 km (12)

Average discharge: 15,000 m<sup>3</sup>/s (8)



# Thank you very much for your kind attention

