

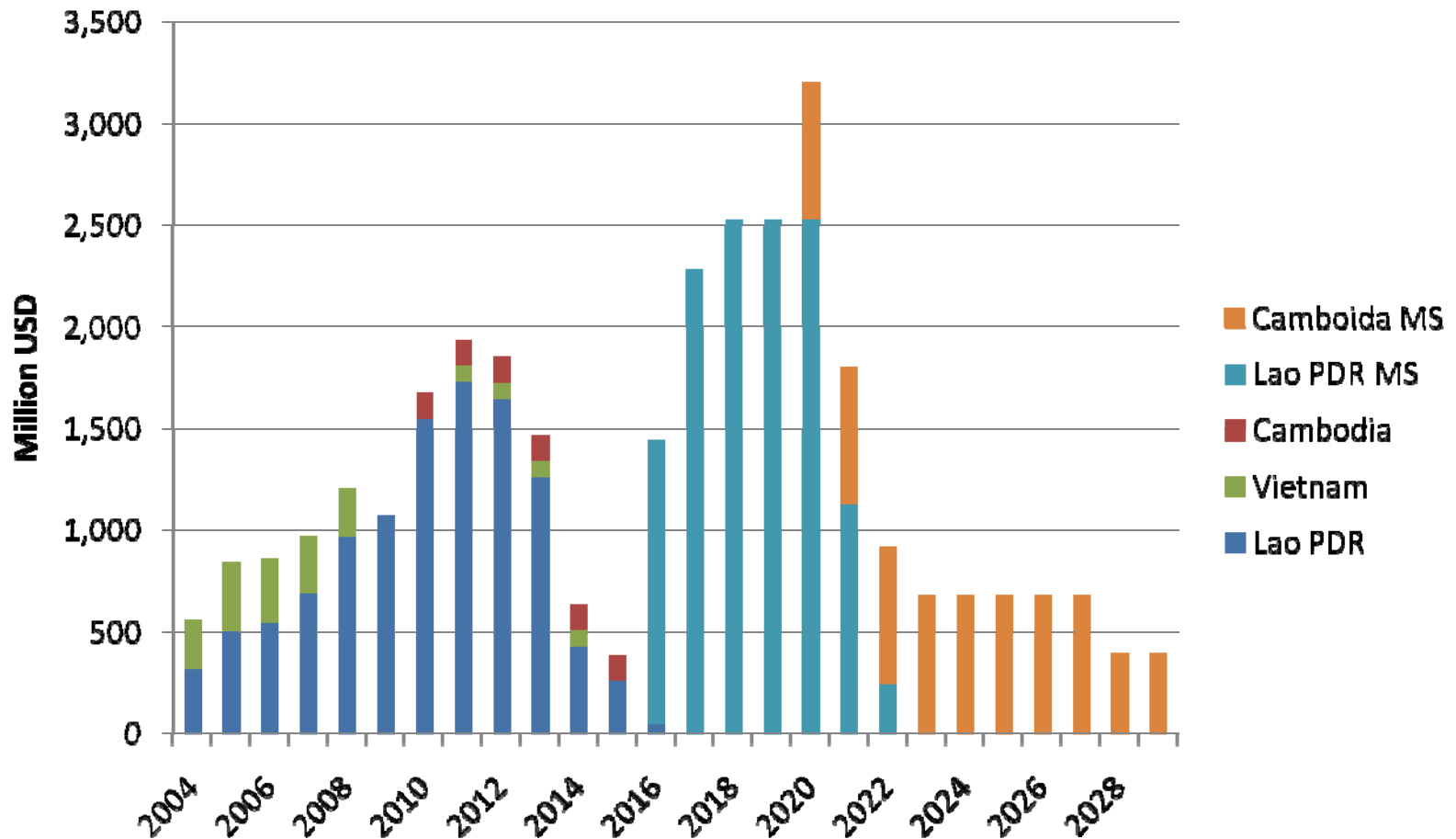
MRC SEA FOR HYDROPOWER ON THE MEKONG MAINSTREAM

Economics theme paper: Impacts

Key issues in the economics theme

- Macro economic impacts
 - Investment and revenue stimulus
 - Booming sector
 - Debt sustainability
- Impacts on development sectors
 - Sectoral impacts
 - Impacts on ecological goods and services
- Distributional implications of economic impacts
 - Poor-non-poor impacts
 - Impacts by LMB country

Macro-economic impacts: Large scale investments



Macro-economic impacts: Revenue generation – experience of NT2

- NT2 expected to generate on average over **USD 370 million/p.a. in gross revenue** (MRC database 2009) and **USD 70 million/p.a. in net revenue** (World Bank 2008) between 2009 and 2024 ($\approx 19\%$ of gross revenue for first 15 years)
- NT2 alone expected to account for between 3-5% of GoL revenue between 2010 and 2020
- NT2 is about 2/3 the size of Ban Koum in terms of power produced

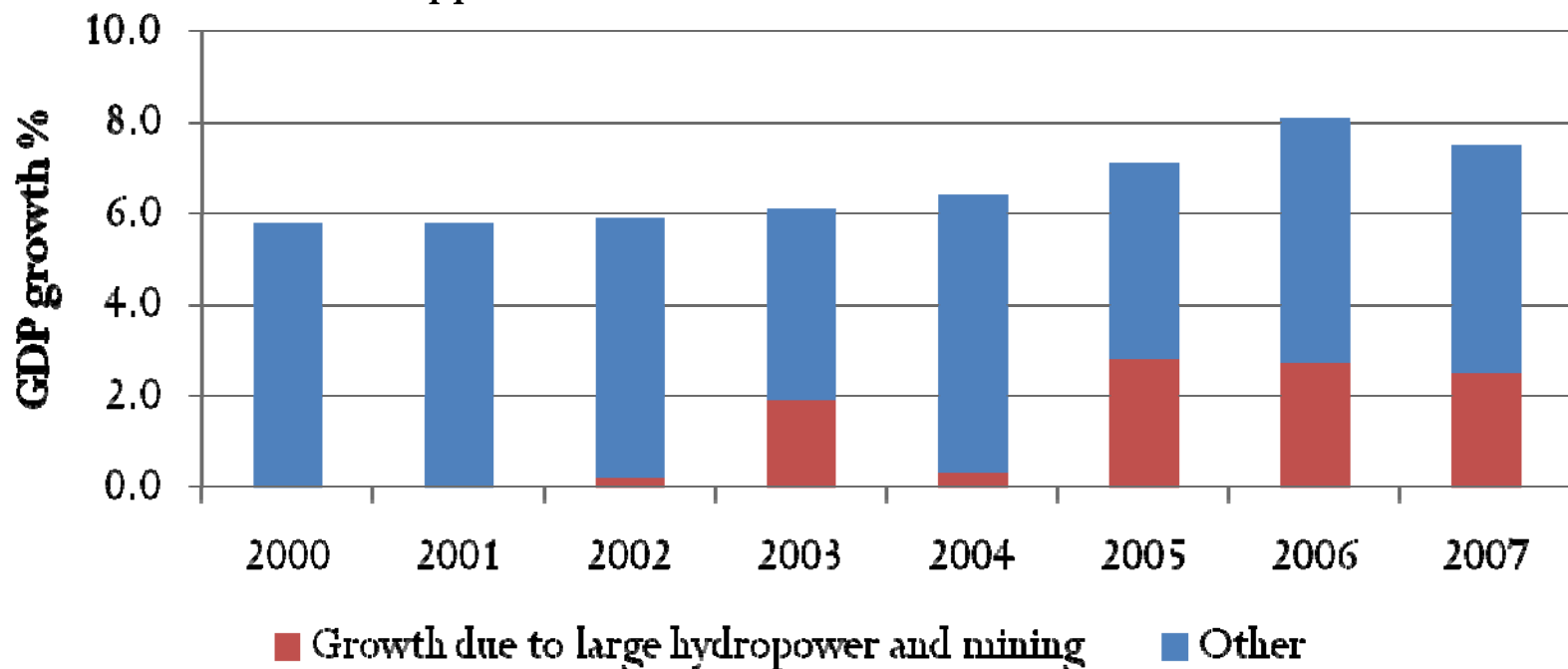
Macro-economic impacts: Revenue generation - MSHP

- Average revenue generation for MSHP will depend upon the PPA, structure of the financing, project design, provision for social and environmental impacts etc
- Net revenue generation in concession period of BOT projects (25 years) dependant upon **government capacity and political will** to:
 - Negotiate favorable PPAs and concession agreements
 - Enforce the agreements through adequate oversight
- **Proportionately less** than NT2 as currently no recourse to concessional financing
- Net revenue generation for MSHP would be significant at several hundreds of millions dollars annually in Lao PDR

Macro-economic impacts

- **Opportunities**

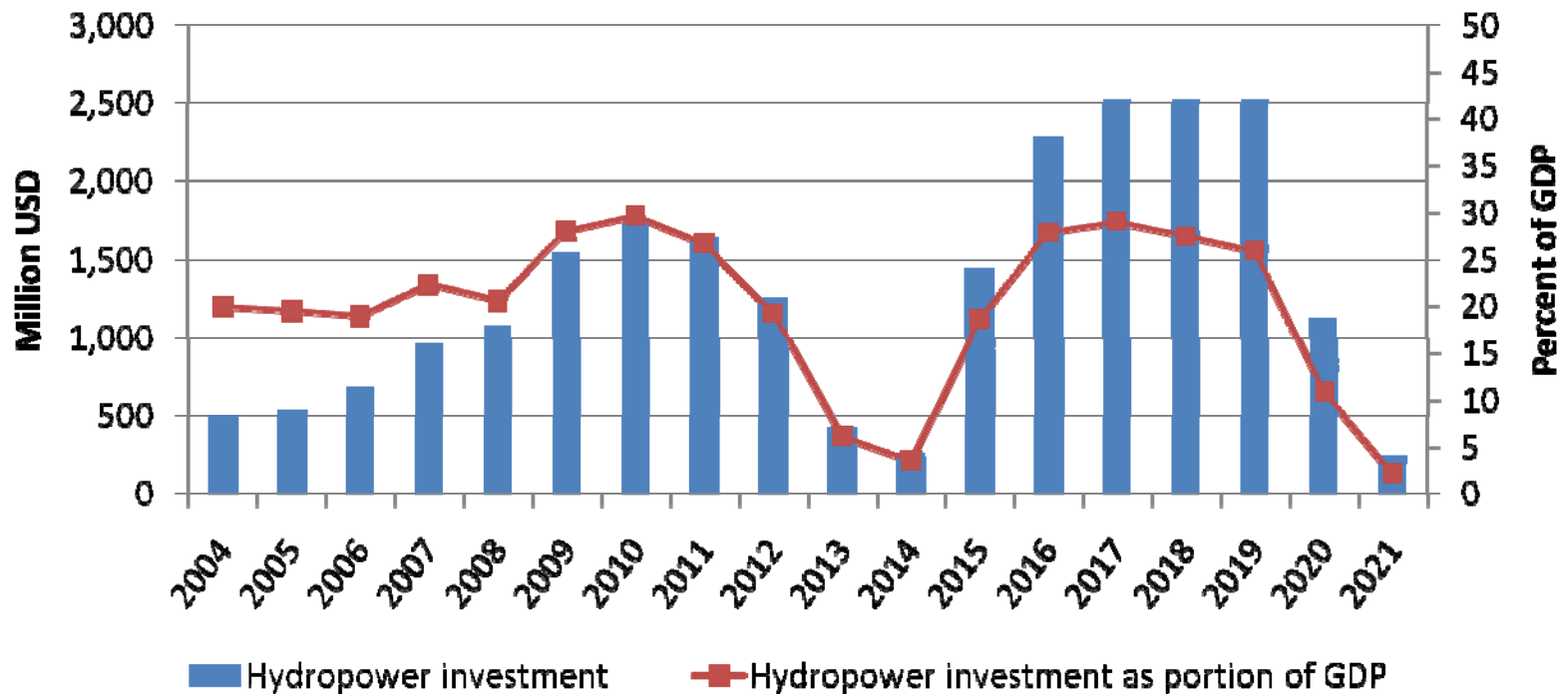
- Economic stimulus from FDI worth around USD 25 billion by 2030
- Increased GDP growth, employment and stimulus to input supplying sectors in the host nation and region
- Value –added of power production mainly exported for first 25 years
- Increased government revenues from power sales - potential for greater development expenditures
- More modest opportunities for FDI and increased revenues in Cambodia



Macro-economic impacts

- **Risks (Lao PDR)**

- Economic 'boom' in HP sector could lead to macro-economic imbalances
- Real exchange rate appreciation may damage the competitiveness of tradable goods sectors (e.g. agriculture and manufacturing)
- Increased government debt to fund state equity stakes in MSHP may lead to perceptions of increased risk and higher risk premiums



Sectoral impacts : fisheries

- **Opportunity**

- Potential for reservoir fisheries of between USD 50 million to USD 900 million annually

- **Risk**

- Dams will block migration routes, change flooding patterns, change nutrient flows in the basin
- Likely to result in significant losses of capture fisheries
- Loss of capture fisheries worth USD 1.5 billion to USD 5 billion annually
- Marine fisheries productivity likely to suffer losses due to sediment trapping and loss of nutrients

Sectoral impacts : fisheries

- **Overall impact**

- Net loss of between USD 0.6 billion to USD 4.5 billion annually (and considerably larger if impact on marine fisheries taken into account)
- Knock-on implications for associated industries (e.g. fish processing, fishing tackle and boat manufacture, salt and ice production industries)
- Disproportionate affect on the poor
- Cambodia also most severely affected as Mekong river fisheries are very important both in contribution to GDP and a source of livelihoods

Sectoral impacts : agriculture

- **Opportunity**

- Extension of irrigable area associated with dams (e.g. Pak Chom, Lat Sua, Ban Koum)
- Estimated production increase of USD 15.5 million/year

- **Risk**

- Some agricultural land loss due to inundation in impoundment areas and due to construction of transmission lines - eestimated production loss of USD 4.1 million/year
- Loss of river bank gardens in impoundment areas , a conservative estimate values annual lost production at USD 21 million
- Sediment trapping caused by the dams likely to have significant impacts for nutrient flows and agricultural productivity in flood plain areas and especially on the delta

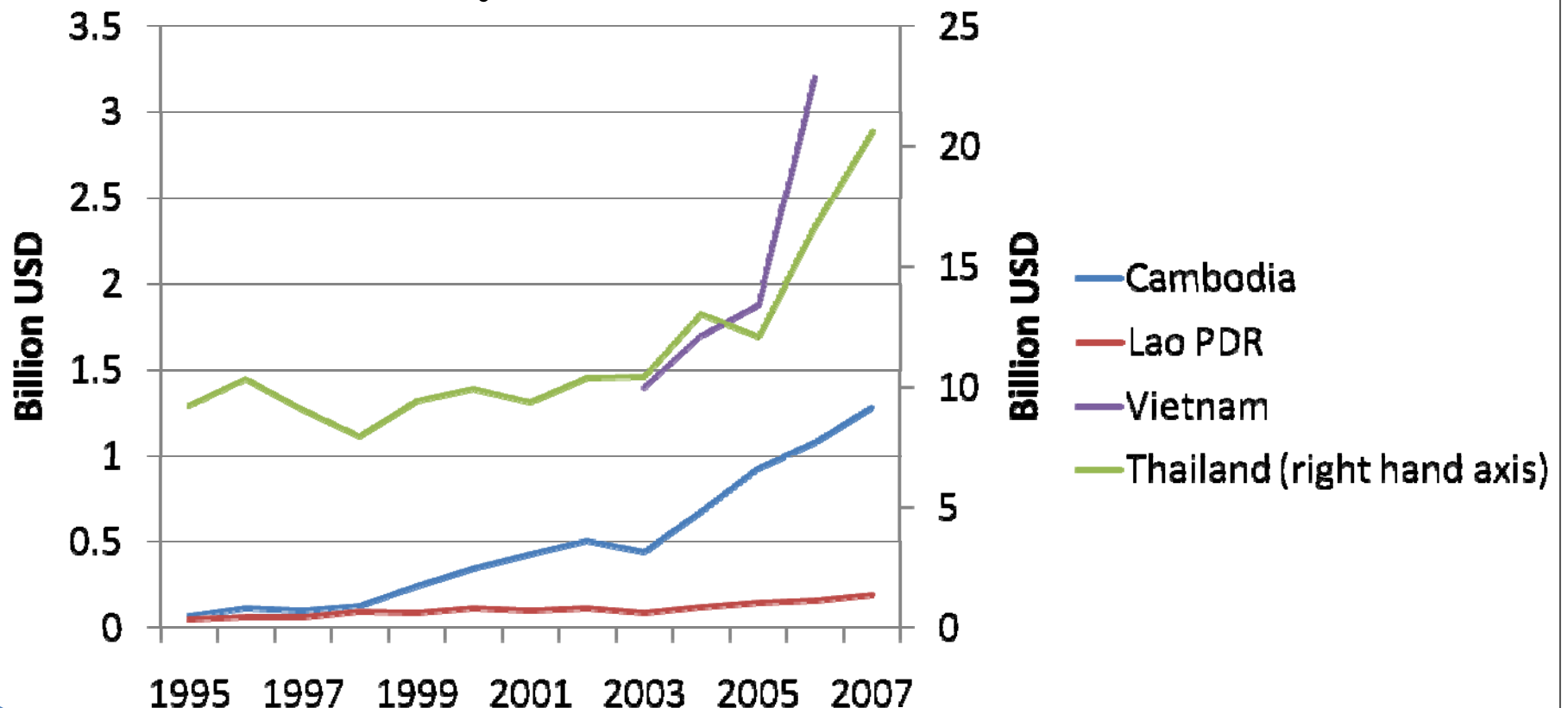
Sectoral impacts : agriculture

- **Overall impact**

- Net loss of around USD 9.6 million annually - this figure would be much higher if it included loss of productivity on the delta
- Disproportionate affect on the riparian communities and the poor
- Loss of river bank gardens likely to affect riparian communities in Lao PDR most

Sectoral impacts : tourism

- Tourism important growth sector in the region (expected to grow 17% annually to 2020) (ADB GMS Tourism strategy)
- LMB tourism heavily reliant on the natural resource base of the basin



Sectoral impacts : tourism

- **Opportunity**

- Reservoir tourism and dam sight –seeing (more attractive for domestic tourists)
- Opportunity for boom in ‘last chance to see’ tourism – before projects go ahead

- **Risk**

- Degradation and loss of key ecological assets and natural landscape
- For example, Irrawaddy dolphins in Kratie province and Stung Treng Ramsar site
- Loss of tourism potential in the LMB particularly eco-tourism in Lao PDR and Cambodia
- During construction period significant disruption to river traffic and tourism over next 20 years

Sectoral impacts : tourism

- **Overall impact**
 - Overall loss of tourism potential in the LMB
 - Loss concentrated in areas key for eco-tourism
 - Cambodia and Lao PDR tourism sectors likely to suffer most

Sectoral impacts : navigation

- **Opportunity**

- Depending on the configuration of the dams potential for much improved navigability of in Zone 2 (between Vientiane and China)
- Greater depth of water may also allow bigger boats (1,000 DWT (MRC navigation programme)
- Presents significant opportunity for freight and bulk cargo sector
- Possible synergies with expanding mining sector in the region
- Opportunities for tourism passenger segments

- **Risk**

- Decreased longitudinal connectivity for local transport

Sectoral impacts : navigation

- **Overall impact**

- Gain in navigation potential and economic value associated with this
- Local communities may suffer from losses in longitudinal navigability for small boats



Ecosystem assets and services

- **Risk**

- Ecosystems associated within the main stream will be seriously affected by MSHP development
- Most in-stream wetlands will be lost in zones 2, 3 and 4
- These provide a range of services including habitats for wildlife, useful plants, water purification and storage, nutrient recycling, ground water recharge etc.
- Lead to productivity losses in associated sectors, including **fisheries, tourism and agriculture**
- E.G Stung Treng Ramsar site **alone** has been valued at **USD 7.1 million** annually (IUCN 2005)
- Loss of edible aquatic plants – economically important for some groups

- **Overall impact**

- Negative
- Losses are likely to affect riparian communities and the poor

Distribution of impacts : poor/non-poor

- **Opportunities**

- Increased revenue generation for host countries and spending from hydropower could target the poor and poverty reduction
- Employment stimulus in construction and supporting sectors
- Increased competitiveness and employment in some sectors in some countries (e.g. Cambodian manufacturing sector)

- **Risks**

- Poverty density living close to the mainstream relatively high and increasing
- Poor tend to be more dependant upon natural resources
- Poor are more vulnerable to external shocks
- Impacts of MSHP are likely to fall disproportionately on the poor (fisheries, RBGs, etc)
- Macro-economic impacts may adversely affect sectors important for poverty reduction (agriculture, manufacturing)

Distribution of impacts : poor/non-poor

- **Overall impact**

- The rural poor, particularly in riparian areas are likely to bear a net cost due to direct and indirect impacts of MSHP development
- Urban poor may also be adversely affected by MSHP through decreases in food security
- Increased pressure push factor for rural-urban migration

Distribution of impacts : Cambodia

- **Opportunities**

- Significant benefits from cheaper local power
- Increased competitiveness in manufacturing sector
- Increased government revenue
- Increase in irrigable area and agricultural productivity in some areas

- **Risks**

- Loss of fisheries
 - Likely to affect livelihoods of over 1.6 million fisher folk
 - Mekong capture fisheries important contributors to GDP
 - Ancillary services and processing
- Loss of river bank gardens - like to be significant for riparian communities in some areas
- Loss of fertility and agricultural productivity in flood plains
- Loss of tourism assets and revenue
- Lack of national grid may inhibit equitable distribution of power

Distribution of impacts : Cambodia

- **Overall impact**

- Likelihood of serious adverse consequences for fisheries and fisher folk – food security and poverty reduction
- Significant benefits from power sector development and cheaper power for industry in the long –term
- Fisheries losses likely to out-weight benefits of power production at least in the short term

Distribution of impacts : Lao PDR

- **Opportunities**

- Significant benefits from economic stimulus of FDI in MSHP
- May see some net revenue benefits in concession period depending on the design of financing agreement and adequate oversight capacity
- Likely to see significant benefits **after 25 year concessions** end and the projects transferred to GoL
- Benefits of increased irrigable area and agricultural productivity in some areas

- **Risks**

- Possibility of macro-economic imbalances developing due to booming hydropower sector
- Loss of fisheries – likely to affect food security and livelihoods of vulnerable populations
- Loss of river bank gardens particularly significant in Lao PDR
- Loss of valuable tourism assets

Distribution of impacts : Lao PDR

- **Overall impact**

- Likely significant overall economic benefit – although this is likely to be unevenly distributed
- As with Cambodia negative impacts on vulnerable communities likely to be significant
- GoL expenditure of increased net revenues could help ameliorate negative impacts

Distribution of impacts : Thailand

- **Opportunities**

- Will capture significant portion of the economic benefits of power from imports
- Net revenue generation from Ban Koum and Pak Chom

- **Risks**

- Loss of fisheries
- Loss of agricultural land
- Possible loss of eco-tourism assets

- **Overall impact**

- Overall economic benefit
- Localized economic risks to livelihoods for riparian communities in the basin

Distribution of impacts : Vietnam

- **Opportunities**

- Will capture a significant portion of the economic benefits of improved power supply (from imported power)

- **Risks**

- Loss of fisheries – likely to affect livelihoods of fisher folk in delta - likely to be over-represented in by poorer groups
- Loss of sediments and associated nutrients significant adverse economic affects to **deltaic sedimentation, fisheries (Mekong and marine) and agriculture**

- **Overall impact**

- Likely overall economic loss
- Borne predominantly by poorer communities on the Mekong delta

Thank you for your attention