

Evaluating Projects in the GMS: North-South Economic Corridor

**Presented by
Susan Stone**

for

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Aide for Trade**

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Presentation Outline

- **The Greater Mekong Subregion**
- **The North-South Economic Corridor**
- **The Cross Border Transport Agreement (CBTA)**
- **Approach to evaluating impacts: GTAP Model**
- **Outcomes***
- **What's missing**

*Based on work done in collaboration with Anna Strutt, Waikato University and Tom Hertel, Purdue University

GREATER MEKONG SUBREGION



Myanmar
 Land area: 677 thou sq km
 Population: 56.2 M
 GDP per capita: US\$231

People's Republic of China
 Land area: 633 thou sq km
 Population: 94.1 M
 GDP per capita: US\$1,173
 (figures for Yunnan and Guangxi only)

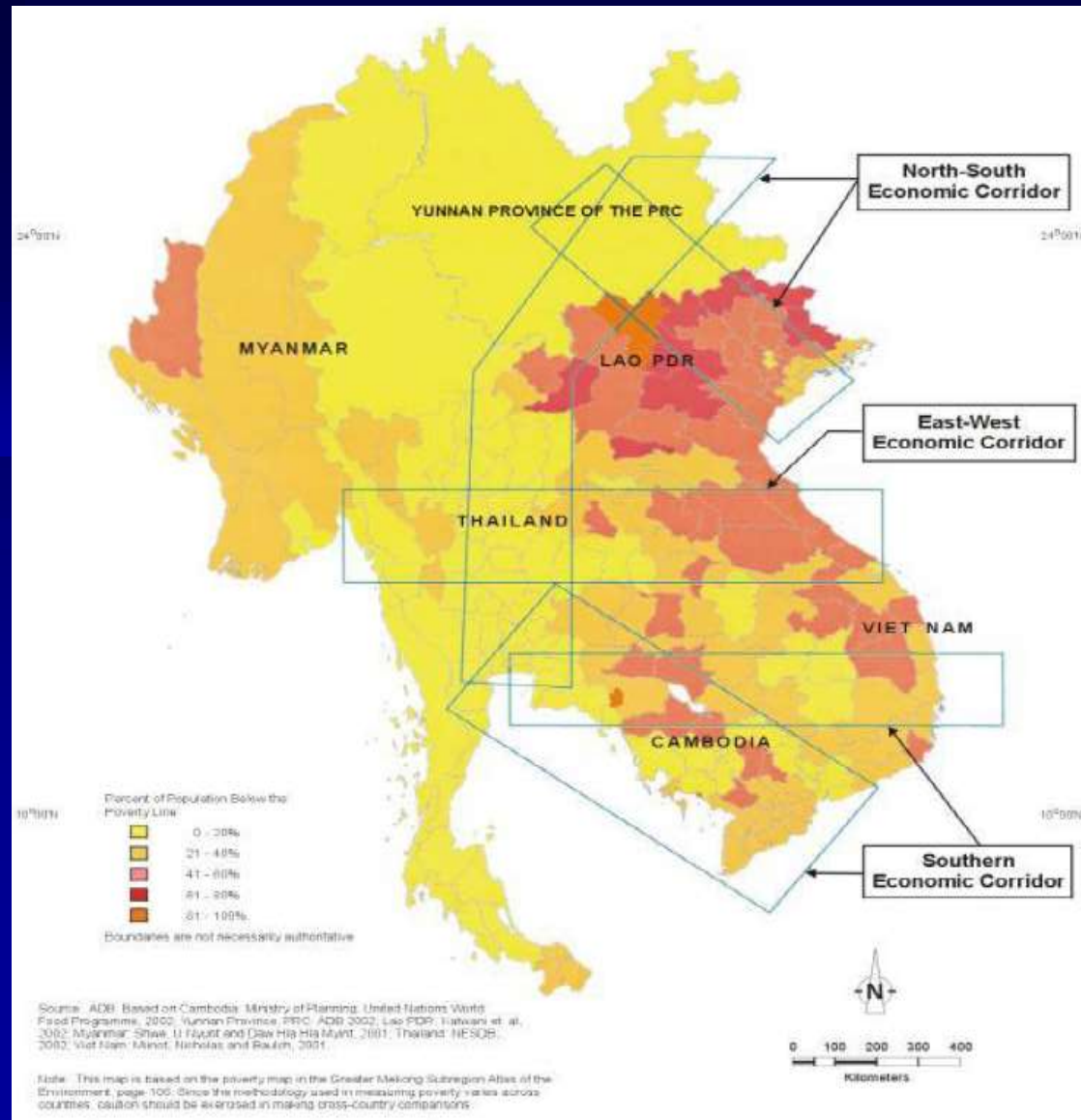
Thailand
 Land area: 513 thou sq km
 Population: 65.2M
 GDP per capita: US\$3,162

Viet Nam
 Land area: 332 thou sq km
 Population: 84.2 M
 GDP per capita: US\$723

Cambodia
 Land area: 181 thou sq km
 Population: 14.2 M
 GDP per capita: US\$513

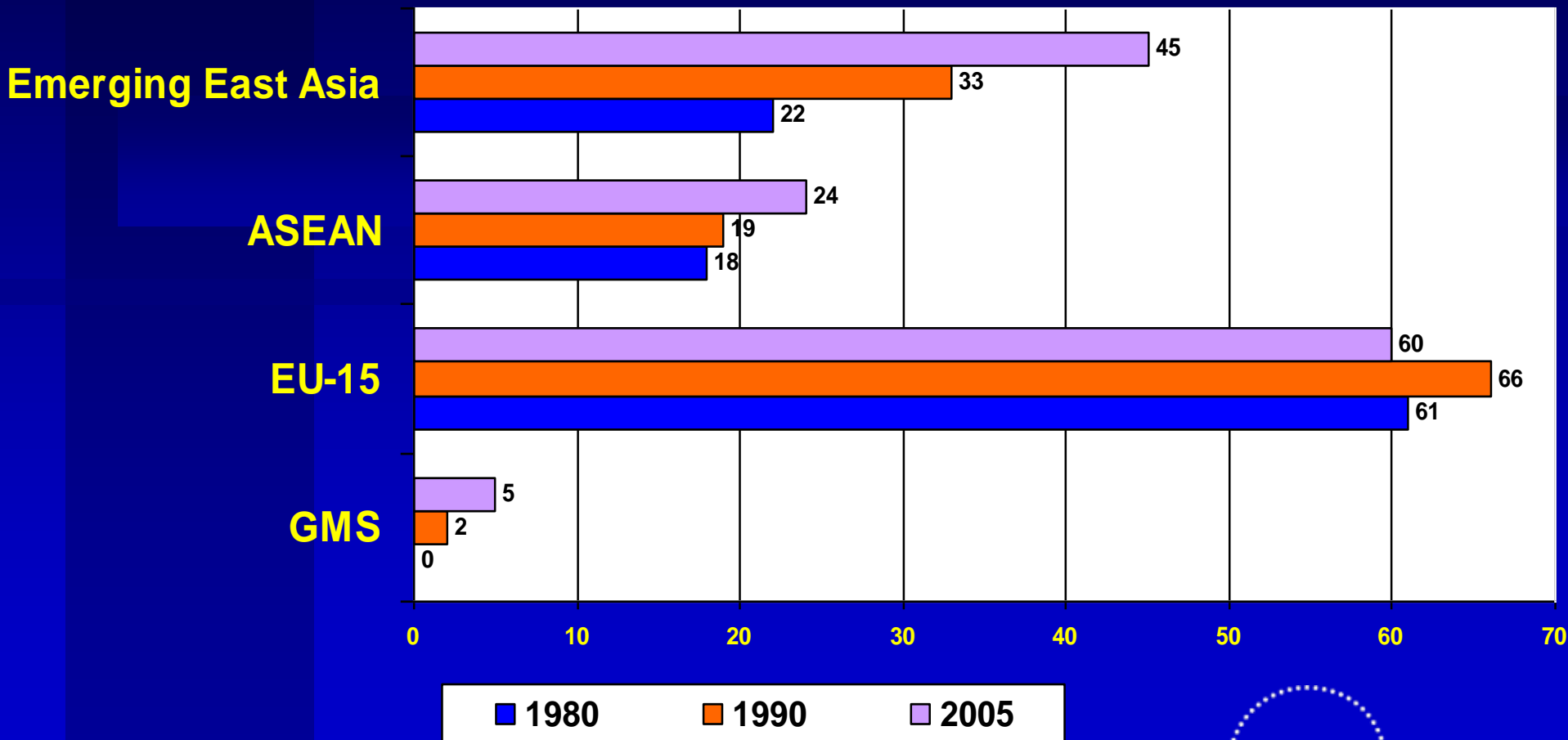
Lao PDR
 Land area: 237 thou sq km
 Population: 5.7 M
 GDP per capita: US\$599

North South Economic Corridor



Source: ADB

Intraregional Trade Shares (%)



ADB Assisted Project Funding GMS

Total Loans (\$millions) - <i>as of April 2008</i>				
	Project	ADB	Gov't	Other
Cambodia	365.8	222.9	81.8	61.1
Lao PDR	2,103.7	285.9	102.2	1,715.6
PRC	5,243.9	1,532.0	2,586.2	1,125.7
VietNam	2,433.7	1,535.5	270.8	627.5
Total Loans	10,147.1	3,576.3	3,041.0	3,529.9
<i>For North-South Economic Corridor:</i>				
	Total	ADB	Transport & Trade	
Investment in NSEC	7,305.5	1,671	2,829.1	635.0

Analytical Framework

- Improved transportation infrastructure gives rise to complex economic interactions
 - Impacts will differ, including by region, sector and household poverty level
- To assess economic outcomes from Cross Border Transport Infrastructure (CBTI), we use:
 - A multi-region general equilibrium model
 - Along with household survey data

Model and Database

- We will use the Global Trade Analysis Project (GTAP) model and Version 7 of the database
 - Covers 113 countries/regions and 57 sectors
- Enables a focus on the GMS
 - i.e. Cambodia, Lao PDR, Thailand, Viet Nam and Myanmar
 - Yunnan, Guangxi Zhuang are only available in the more aggregated PRC

Land Transport Impacts

We use available estimates of quantifiable benefits e.g.

- ADB estimates of reduced travel times and reduced transportation costs from implementation of the North-South Economic Corridor (NSEC) Project
- ADB Technical Assistance No 6310: Development Study of the North-South Economic Corridor (Banomyong 2007).
- ALMEC Corporation/JICA (2007), “The Research on the Cross-Border Transportation Infrastructure Phase II”, *Final Report*, Japan International Cooperation Agency (JICA).Japan
- External Trade Organisation (JETRO): ASEAN Logistics Network Map estimates costs and travel times
- Further estimates?

Estimates of Cost and Time Savings along NSEC

Bangkok-Kunming	\$ per Ton	% Change	Transit Time (hours)	% Change	Perception of reliability (based on a 5 point scale)
R3W (via Myanmar)					
• 2000	639		77		2.2
• 2006	470	26.5	46	40.3	3.0
• 2015	269	42.8	30	34.8	3.5
R3E (via LaoPDR)					
• 2000	563		78		2.6
• 2006	392	30.4	51	34.6	3.3
• 2015	210	46.4	30	41.2	4.0
Via Mekong					
• 2000	406		128		2.7
• 2006	271	33.3	88	31.7	3.4
• 2015	107	60.5	70	24.5	3.7

Cross Border Transport Agreement (CBTA)

- Covers facilitation of border-crossing formalities, the exchange of commercial traffic rights, establishment of transit traffic regimes, and also the setting of infrastructure standards and requirements for road vehicles in cross-border traffic.
- As of March 2007 all GMS countries had signed the agreement. The CBTA, in conjunction with the transport corridor development, has the potential to significantly improve time and costs of goods transportation throughout the region.

Improving connectivity in the GMS

- The GMS program aims to improve connectivity, including
 - ‘Hardware’ in the form of physical infrastructure
 - Complementary ‘software’ and the facilitation of cross-border trade and investment
- Even a moderate reduction in the time taken to trade may bring strong economic benefits
 - Including improved economic growth and export diversification, particularly for poor economies

Simulations

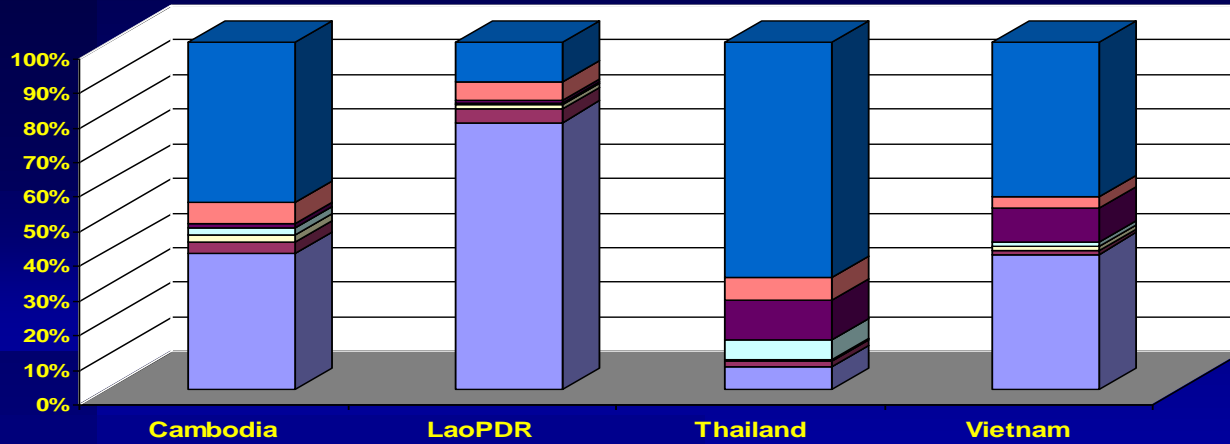
- Following construction of the supporting databases and development of specific scenarios, we simulated anticipated economy-wide outcomes by:
 - Lowering land transport costs within GMS by **45%**
 - Reducing costs of trade within the region by **25%**

Poverty Module

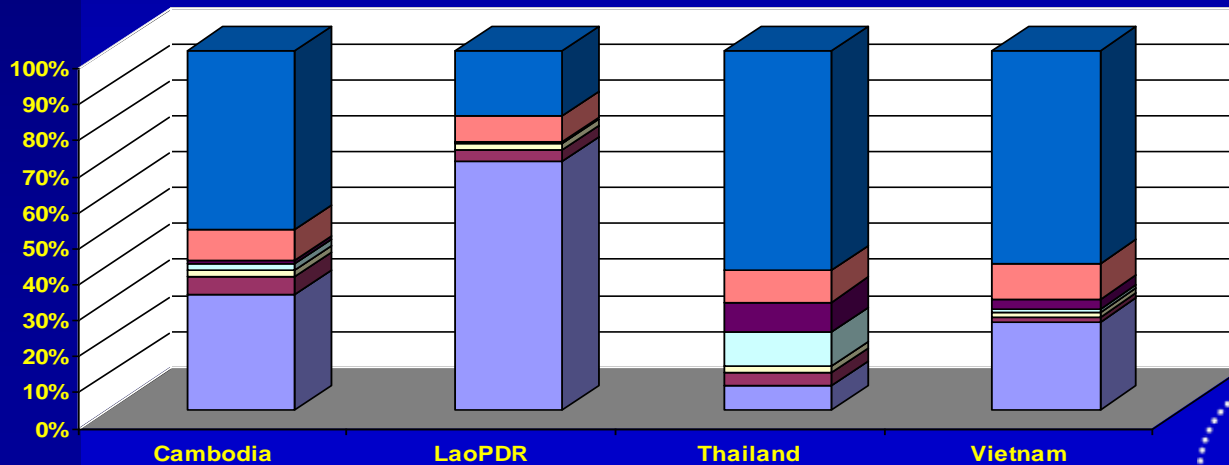
- Evaluates poverty impacts by calculating changes in the percentage of the population below the poverty level of utility - defined at \$1/day and \$2/day – through changes in primary sources of income.
- To account for earnings specialization we identify five household groups that rely almost exclusively (95% or more) on one source of income:
 - agricultural self employment,
 - non-agricultural self-employment,
 - rural wage labor,
 - urban wage labor, or
 - transfer payments.
- The remaining households are grouped into rural and urban diversified strata, giving seven strata.

Share of national poverty by stratum

\$1 Day



\$2 Day



■ AGRICULT
 ■ NNAGRCLT
 ■ URBLABOR
 ■ RURLABOR
 ■ TRANSFER
 ■ URBDIVRS
 ■ RURDIVRS

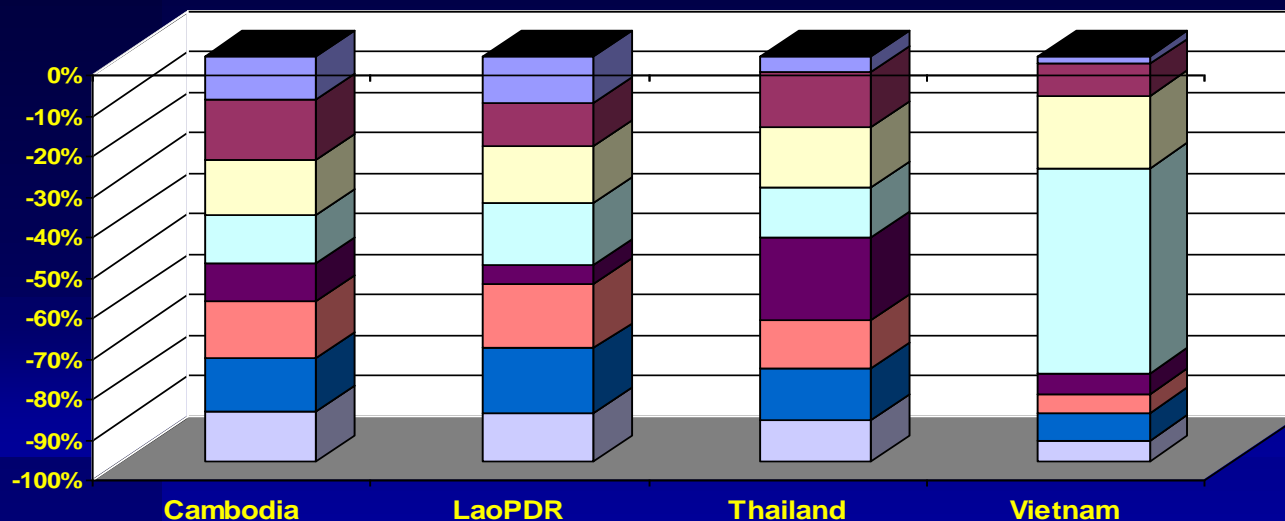
Preliminary Results

Aggregate Impacts of Reduced Transport and Trade Costs

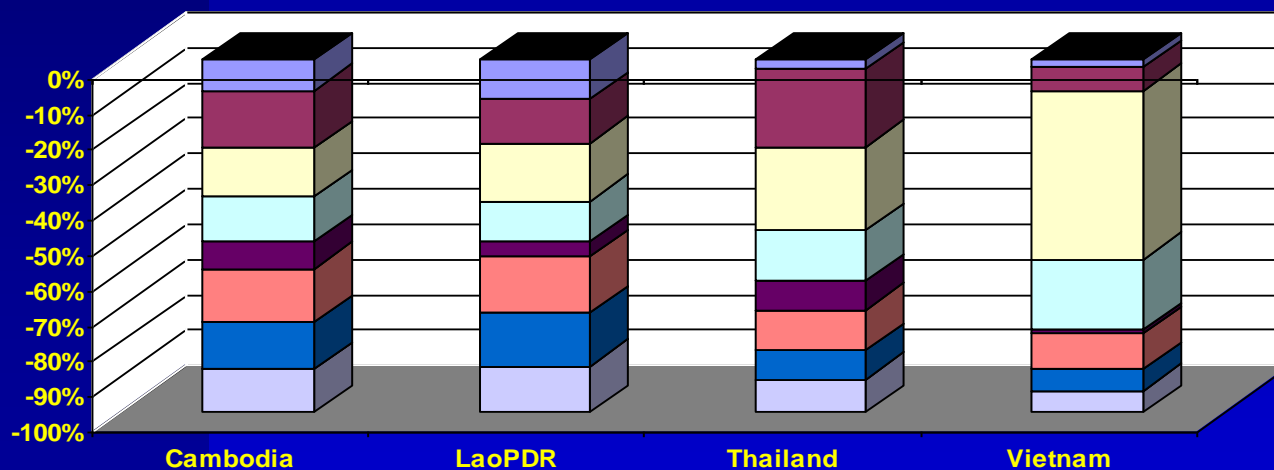
	Cambodia	Lao PDR	Myanmar	Thailand	Viet Nam	PRC
GDP (%)	7.36	6.49	4.73	1.01	3.24	0.06
<i>Excl. impact of PRC on land transport</i>	7.36	6.48	4.71	1.01	3.13	0.06
<i>Excl. impact of PRC on trade facilitation</i>	6.64	6.33	4.01	0.65	2.26	0.00
Change in GDP (US\$m)	359.3	159.2	365.8	1638.9	1392.4	1057.9
Welfare, EV (US\$m)	413.72	230.85	632.02	2686.21	1809.08	1299.7
<i>Excl. impact of PRC on land transport</i>	413.92	230.04	620.16	2661.92	1660.28	1179.90
<i>Excl. impact of PRC on trade facilitation</i>	385.36	227.54	572.84	1594.39	1267.54	-103.16
Contributions to EV (%)						
Allocative eff. effects	14.5	4.1	12.4	17.7	4.4	5.2
Terms of trade effects	7.3	19.6	38.4	40.5	16.4	17.1
Decline in transp. cost	0.1	3.9	3.8	3.0	5.8	2.3
Improved Trade Facil.	72.1	65.8	46.6	43.4	72.9	76.2

Change in poverty headcount

\$1 Day



\$2 Day



- AGRICULT
- NNAGRCLT
- URBLABOR
- RURLABOR
- TRANSFER
- URBDIVRS
- RURDIVRS
- Nation

Benefits versus Costs

Preliminary Results

Welfare gains to the region total
\$5,771.8 million*

- Applied to all land transport routes in GMS trade
- No domestic routes explicitly considered

Total Costs of NSEC Projects
\$2,829.1 million*

- Under ADB programs
- CBTA not fully implemented – many CBT activities planned in support

*Excluding PRC

But haven't included

- Effects on income disparities:
 - growth in the border areas may not reach the rural or otherwise isolated communities leading to two-tier growth scenarios for regional economies.
- Trafficking
 - Border regions are closely associated with illegal narcotics dealing and use, human trafficking and increased incidence of HIV/AIDS.
- Traffic accidents
 - The annual economic loss from road accidents for GMS countries has been estimated at over \$4.7 billion annually or more than 2 % of annual GDP (ADB 2005).
- Environmental concerns
 - Changes in land use, water degradation, increased emissions, etc are not explicitly taken into account.
- Equity issues:
 - often unsightly or certain highly polluting activities are located in areas where the population is vulnerable or has fewer resources with which to fight such placement decisions.

Nor considered...

- Given the limited availability of funds, choices have to be made between projects:
 - Other funding needs (e.g. hospitals, schools, etc).
 - Type of funding available (tax, borrow, etc).
- Asymmetric timing of benefits and costs, between countries, as well as between regions within countries. Not everyone benefits from infrastructure investment; nor do those that do benefit, share equally.
- While broad-based impacts on development may be positive, local socioeconomic impacts can sometimes be negative.

Questions

- What are the major challenges in evaluating Aid for Trade?
 - Intangible nature of many benefits/costs.
 - Lack of quality data.
 - Timing of costs versus benefits.
- What do existing Aid for Trade evaluations tell us?
 - For this project: benefits would seem to outweigh costs.
 - Not sure about counter-factual.
- What are the lessons, methods and recommended steps for improving evaluations?
 - Need improved data and consistent baseline.
 - General equilibrium appropriate because of ability to capture 'spillovers' but need a suite of tools.
 - Funding for statistical offices for data collection.

Thank You!

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sstone@adbi.org