

Rural Transport Infrastructure in Cambodia

Rural Transport Infrastructure:
Key Element to Development.

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Dara Johnston,
ILO Upstream Project, Cambodia.



Introduction

- ◆ Background to Cambodia
- ◆ Cambodia's Road Network
- ◆ Roads Responsibilities
- ◆ Rural Transport Infrastructure Studies
- ◆ MRDs Policy & Department of Rural Roads
- ◆ Investments in Basic Access
- ◆ Private Sector Development
- ◆ MRDs Pro-Poor Policy



Background to Cambodia

11.4 million people

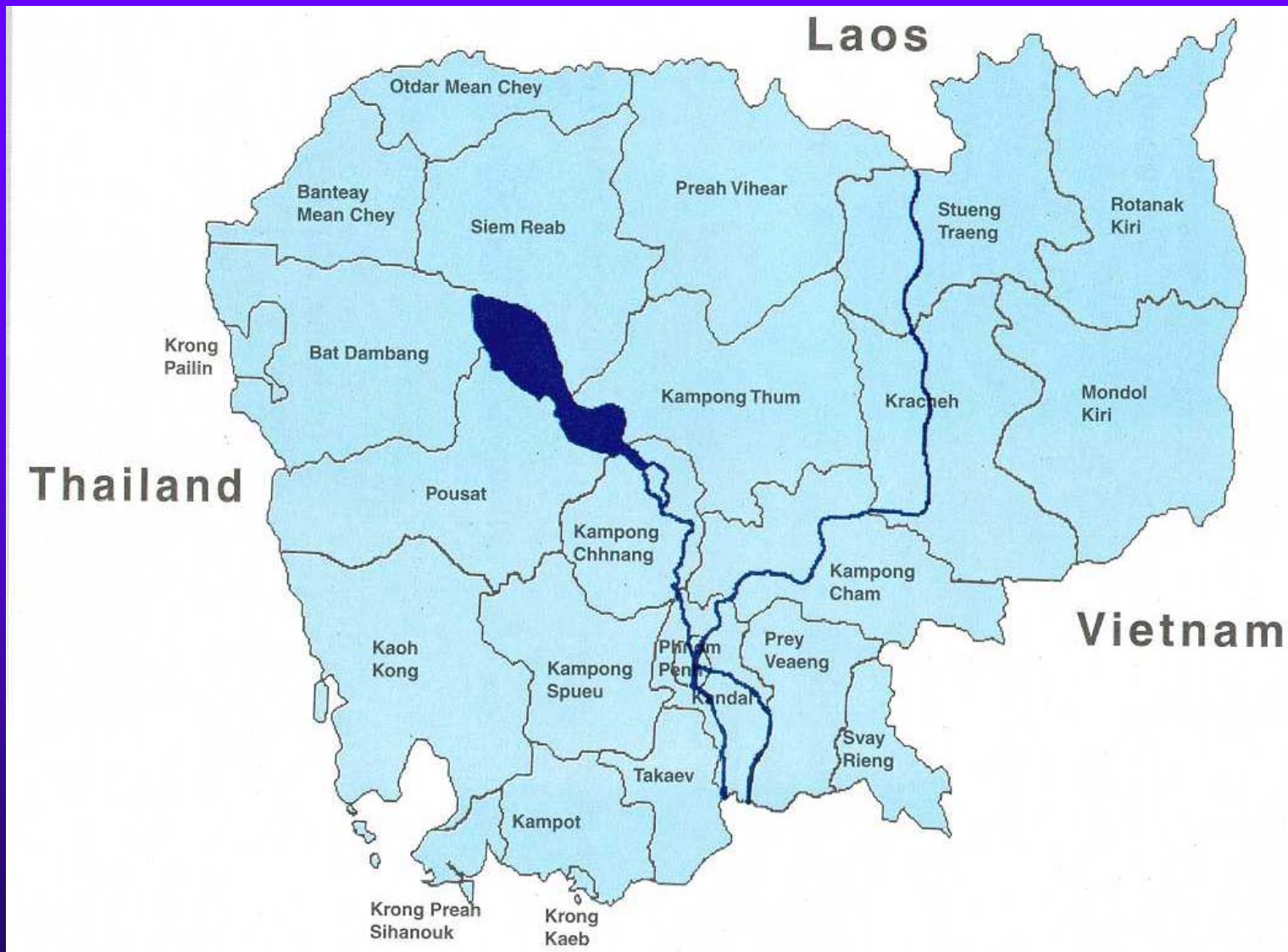
24 Provinces

180 Districts

1,584 Communes

13,272 Villages

Source - 1998 Census





- ◆ **GDP** **\$280**
- ◆ **Poverty Rate** **36.1%**
 - **Rural** **40.1%**
 - **Urban** **29.9%**
- ◆ **Infant Mortality - 110 (per 1,000 live births)**
- ◆ **Access to safe drinking water - 13% of population**
- ◆ **Life expectancy - 54.4 (1996)**

Source: World Bank, Cambodia Poverty Assessment 1998





Road Construction and Maintenance Responsibilities

- ◆ The Ministry of Public Works and Transport (MPWT) is responsible for the National and the Provincial road networks.
- ◆ The Ministry of Rural Development (MRD) is responsible for the Tertiary and Sub-tertiary road networks.
- ◆ Agreed in a Memo of Understanding between the respective ministries of the 10th of March 2000.



Road Classification	Length in Total and by Condition (km)			Network Value (US\$ x10³)
	Total	Poor to Passable	Good to Fair	
National Roads – Single Digit	1,988	920	1,068	405,000
Other National Roads	2,177	1,477	700	215,775
Provincial Roads	3,555	2,489	1,066	167,065
Total MPW&T	7,720	4,886	2,834	787,840
Tertiary Roads	3,380	1,944	1,364	26,292
Sub-Tertiary Roads	5,797	5,637	160	6,437
Total MRD	9,105	7,581	1,524	32,729
Total for Kingdom	16,825	4,358	12,467	820,569



Rural Transport Infrastructure Studies

- ◆ Household Travel and Transport Analysis
- ◆ Traffic Characteristics Around Puok Market
- ◆ A Survey of Rural Transport Businesses in Cambodia



Household Travel and Transport Analysis

- ◆ Average for most households:
 - A family size of 5.8 members;
 - A daily travel time of six hours and 43 minutes;
 - A daily travel distance of 23km;
 - A daily weight carried of 180.8kg;
 - A daily transport effort of 183kg-km.
- ◆ The most frequently used mode of transport was on foot (> 91%), mostly by women carrying water



Traffic Characteristics Around Puok Market

Vehicle Type	
Bicycle	29.3
Motorbike	58.7
Remorque	298.9
Animal drawn cart	266.8
Car	820.2
Pickup	1,056.30
Koyun	1,564.00
Truck	2,548.90
Handcart	179.6

Remorque



Koyun





A Survey of Rural Transport Businesses in Cambodia

Siem Reap and Kampot Provinces

◆ Average Vehicle Travel

- Longest distance (pick-ups) 61,452 km
- Average 20,105 km
- Shortest (handcarts) 2,280 km

◆ Operating Costs

- Fuel 77%
- Spare parts 12%
- Tyres 7%
- Oil 3%



Road Improvement

- ◆ Road Improvement and Fare Decrease
 - Average 17%
- ◆ Road Improvement and Trip Increase

Siem Reap		Kampot		Average
Dry	Wet	Dry	Wet	
19%	2%	30%	24%	13%



Economic Impact of Rural Road Improvements

- ◆ Cambodian Rural Road Economic Appraisal Model
 - Consumer Surplus Model
 - Model evaluates road improvement benefits through assessing changes in vehicle operating costs
 - Information required:
 - Population Density
 - Road Length
 - Estimated Cost

CREAM Model, Comparison of ERR

<i>Density</i>	<i>Economic Rates of Return. Shaded Area = Economically Viable</i>		
<i>Road cost:</i>	Low cost	Medium	High
<i>Per km</i>	\$10,500	\$14,500	\$19,500
50 persons km ²	4.8	-1.1	-
70 persons km ²	11.5	5.1	-0.4
100 persons km ²	19.8	12.2	6.2
120 persons km ²	24.9	16.3	9.8
150 persons km ²	32.3	22	14.6
170 persons km ²	37.1	25.7	17.6
200 persons km ²	44.2	31	21.8



Ministry of Rural Developments Policy

The MRD describes its over-arching policy objective as follows:

“The Ministry of Rural Development is responsible for facilitating improvement of rural social and economic conditions.”

It further describes its mission statement for the sub-sector as follows:

- ◆ *"The MRD Department of Rural Roads (DRR) will contribute to this goal by increasing rural access through cost-effective investment in the maintenance and development of rural roads"*



Rural Roads under MRD

- ◆ 28,000 km of rural roads (historical estimate)
 - 4,000 km Tertiary
 - 24,000 km Sub-tertiary
- ◆ 5 Year Socio-Economic Development Plan
 - Rehabilitate & Maintain 21,195 km
 - 15,195 Laterite (gravel)
 - 6,000 Earth
 - US\$ 56,944,000



Rural Roads Program

- ◆ Department of Rural Roads (national)
 - Office of Rural Roads (provincial)
 - Groups of Rural Roads (district)
- ◆ Accessibility
 - MRD has decided to use IRAP as the tool for guiding their Rural Roads investment program
- ◆ Technology
 - MRD plans to rehabilitate and maintain rural roads relying to a large extent on Labour-Based Appropriate Technology



Employment Creation

Organisation	Workdays
ADB	4,017,137
KfW	2,331,283
WFP	19,010,237
ILO	3,400,000
Total	28,758,657

Since 1992 until end of 2001



Rural Road Maintenance

- ◆ MRD Budget
 - 2000 - \$50,000
 - 2001 - \$500,000
- ◆ Not sufficient to maintain all the roads, but a trend signals the importance of taking formal steps to ensure policy reform and implementation
- ◆ At present, the MRD has funds for maintenance for 41% of the 3,308 km of laterite roads

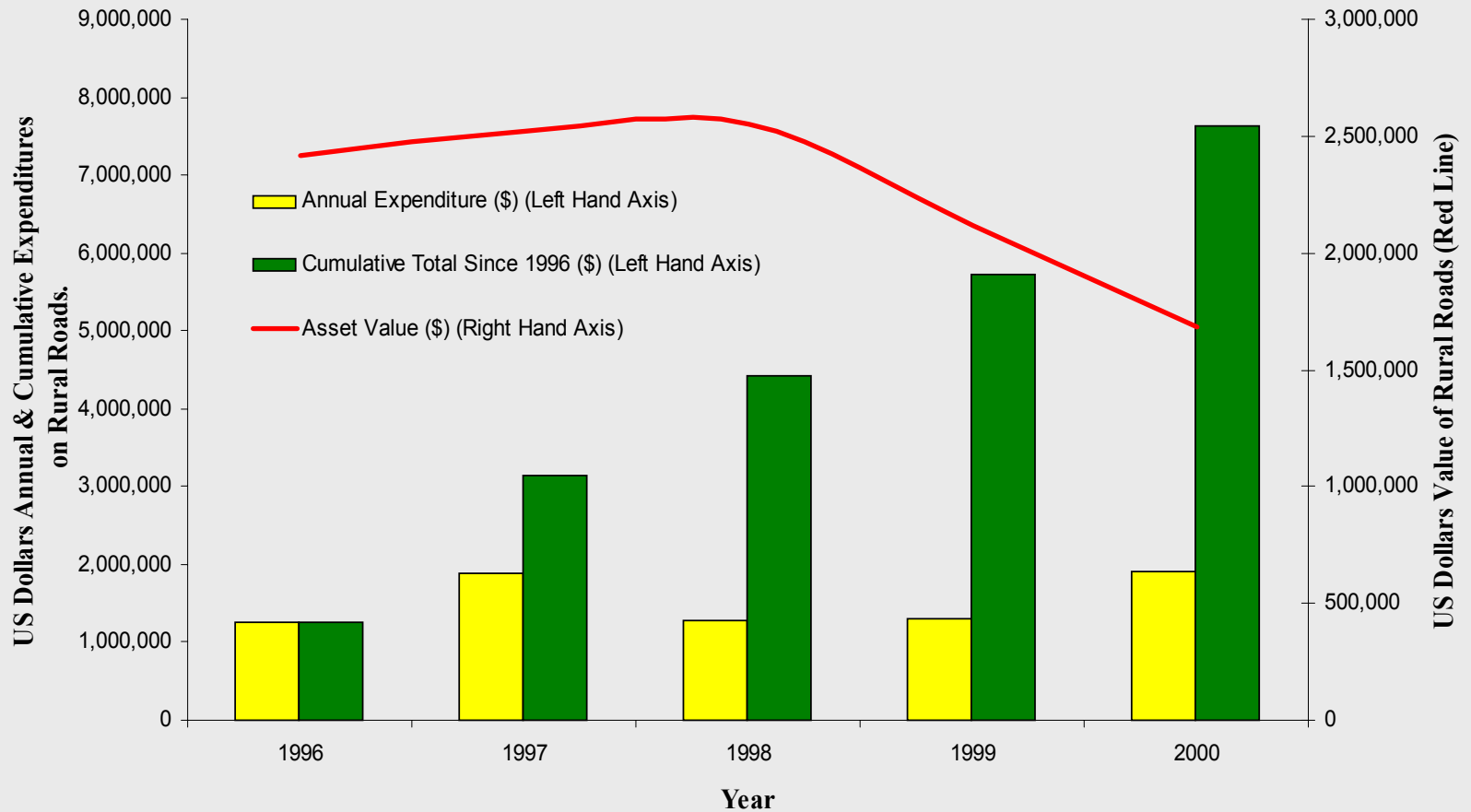


Reduction in Asset Value

- ◆ A survey in on Cambodian province of the investments made in rural infrastructure from 1996 to 2000:
 - 170 km of rural roads in a maintainable condition in 1998
 - 112 km in 2000
 - Average cost to construct a rural road = \$15,000
 - Value of the asset in 1998 was \$2,550,000.
 - Value of the asset in 2000 was \$1,680,000.



Annual and Cumulative Expenditure Compared to Asset Value, Battambang Rural Roads.





Economy Suffered due to lack of Maintenance of the Asset

- ◆ US\$ 4.5 M invested since 1998, the total value of the stock declined by 35%
- ◆ Ample resources were available for maintenance
- ◆ Why:
 - Desire to build new roads
 - Decentralising to too low a level for investments such as roads - rural roads belong to a larger network
 - Assumption that communities will contribute



Disadvantages of laterite

- ◆ Wasting
 - ◆ Regravelling requirements
 - ◆ Laterite Dust
-
- ◆ Investigations are on-going under the “Low Cost Road Surfacing Project” funded by DFID



Private Sector Development

- ◆ 22 Small Scale Contractors trained in LBAT so far with 11 more just recently completed initial training
- ◆ A recent survey has shown the 22 existing contractors are thriving



Pro-Poor Steps taken by MRD in the Rural Roads Sector

- ◆ Creating opportunities by improving
 - access to markets,
 - transport infrastructure
 - Economic growth
- ◆ Facilitating Empowerment By
 - Consulting all stakeholders during the policy formulation
 - Using the IRAP tool



Pro-Poor Steps taken by MRD in the Rural Roads Sector

◆ Enhancing Security

- Providing rural roads which allows for a reliable transport system
- Facilitating the movement of food from areas of surplus to areas of deficit
- Creating jobs

◆ Meeting the Challenge of Development

- Establishing a dedicated rural roads maintenance budget
- Creating an attractive environment for investment
- Establishing the Rural Roads Department
- Allocating ownership of roads to the appropriate levels