ROYAL GOVERNMENT OF CAMBODIA

Ministry of Rural Development

Rural Roads Policy

(Final Draft, September 2007)

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Ministry of Rural Development

Cambodia Rural Road Policy
Year-round Rural Access for All

2007

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Foreword by the Rural Development Minister

Rural transport infrastructure investments represent a significant portion of our investment in rural development. These investments are well justified, as increasing rural access to social and economic opportunities is directly linked to reducing rural poverty. Farmers need to be able to move their surpluses to markets at competitive prices in a timely manner in all seasons, sick rural residents need to have year-round easy access to health centres, children need to go to schools, government and NGO agriculture extension and health workers need to have easy access to the villages.

Improved rural access can make a significant contribution to the realisation of the Cambodian Rectangular Strategy 2004-08 to enhance economic growth, employment, equity, and social justice, which was launched by Samdech Prime Minister Hun Sen of the Royal Government of Cambodia after the new government was formed in July 2004. Improved rural access can also make a significant contribution to the achievement of the Cambodia Millennium Development Goals. In summary, year-round, dependable and affordable access to basic needs, economic and social facilities, services and opportunities is essential in achieving our national development goals.

In 2005 the Ministry of Rural Development (MRD) embarked on the elaboration of a strategic plan for rural roads to set out the long-term direction and framework for rural road development and management. An aim of the plan was to ensure a consistent and unified approach to the planning, improvement and maintenance of rural roads under MRD responsibility. One of the most important issues identified was the need to update and formalise a clear policy for rural roads. The Ministry has now completed the Rural Roads Policy. The Policy will guide the sustainable development and management of rural roads and thereby enable rural road investments to maximise their developmental impacts.

The policy elaboration was guided by a Working Group formed within the Ministry. I would like to thank the Working Group members for their invaluable efforts, and SEACAP for its support to the Rural Roads Policy formulation. I would also like to thank officials from other Ministries, development partners, civil society representatives, and other officials of MRD who contributed to the discussions leading to the finalisation of the Policy.

H. E. Lu Lay Sreng
Deputy Prime Minister and Minister of Rural Development

Abbreviations

C&C	Communication and Coordination
CC	Commune Council
CMDG	Cambodia Millennium Development Goal
D&D	Decentralisation and de-concentration
DORD	District Office of Rural Development
DRR	Department of Rural Roads
GDP	Gross Domestic Product
GIS	Geographic Information Systems
IRAP	Integrated Rural Accessibility Planning
km	Kilometre
L-B	Labour-based
LBAT	Labour-Based Appropriate Technology
MoEF	Ministry of Economy and Finance
MoI	Ministry of Interior
MPWT	Ministry of Public Works and Transport
MRD	Ministry of Rural Development
NPRS	National Poverty Reduction Strategy
NSDP	National Strategic Development Plan
PDRD	Provincial Department of Rural Development
PORR	Provincial Office of Rural Roads
RGC	Royal Government of Cambodia
RWT	Rural water transport
SEDP	Social and Economic Development Plan

1.0 INTRODUCTION

1.1 Background of development of the policy

MRD first produced a draft rural road policy in 1999, which was subsequently updated in 2002. The updating of the policy was necessary to accommodate legal and institutional changes as a result of the early-2002 commune council elections. However, the policy was never formally adopted by MRD. These two policy documents included a number of policy statements on several issues including rural road ownership, management responsibilities, financing road maintenance and construction, choice of technology for rural roads, planning and prioritisation of maintenance works, and monitoring standards and specifications.

In 2005 MRD embarked on the development of a strategic plan for rural roads. The main purpose of the plan was to set out the long-term direction and framework for rural road development and management. An aim of the plan was to ensure a consistent and unified approach to the planning, improvement and maintenance of rural roads. The plan has identified seven important issues to be addressed by MRD, the first of which is a "Detailed and clear policy for rural roads supported by a detailed action plan for pursuing the policy". This document provides the rural road policy that is required.

1.2 National Development Policies

The National Strategic Development Plan (NSDP), 2006-2010, is the main document containing the Royal Government of Cambodia's (RGC's) main priority goals and strategies. The NSDP succeeds two Socio-Economic Development Plans (SEDPs), the first covering the period 1996-2000, and the second 2001-2005. Cambodia has also produced a number of Public Investment Programmes (PIPs), a three year rolling plan, to spell out in greater detail public sector investment and project proposals. A three-year National Poverty Reduction Strategy (NPRS) was adopted in 2002. In addition, the RGC launched a Rectangular Strategy in 2004 that aims to enhance economic growth, employment, equity and social justice through the implementation of different plans.

Cambodia has adopted nine Cambodia Millennium Development Goals (CMDGs) following the United Nations Millennium Declaration in 2000. The reduction of poverty and the achievement of the CMDGs are given the highest priority in the NSDP. The RGC's aim is to operationalise and implement the NSDP goals and targets through the Rectangular Strategy. The NSDP has identified a number of overarching aspects that should govern all other actions to be pursued under the NSDP including: factoring poverty and gender concerns into all activities; targeting the most needy and least served people and areas; relying on human labour for construction of infrastructure, particularly in rural areas; and institutional and capacity building in all sectors. The NSDP emphasises the need for rural development, along with the pursuit of the decentralisation and deconcentration (D&D) strategy, by giving emphasis to the development of rural infrastructure including roads and markets. The plan also emphasises the role of the private sector, both domestic and foreign, to accelerate the pace of economic development.

1.3 Scope of the policy

The scope of this Policy is:

a. Rural roads only; it does not cover other road types or other transport infrastructure.

b. Selected policy directions for transport services on rural roads which are a part of rural transport, but not comprehensive policies on transport services.

This policy will be relevant till a new policy is introduced or the existing policy is updated. Although relevant laws have been examined in the preparation of the Policy, an existing law will have precedence over any policy in the event of a conflict between the two.

2.0 VISION AND GOALS

2.1 Vision

Every Person *living in rural Cambodia will have year-round access to basic needs, economic and social facilities, services and opportunities.*

2.2 Goals

To efficiently develop and manage sustainable rural transport infrastructure, modes and services. More specifically:

a. *Rural access will be efficiently developed and managed to ensure optimal economic returns on investment; connectivity to higher order transport infrastructure; benefits to society; and the use of local resources.*
b. *Rural access will be sustainable in economic, social and environmental terms.*
c. *Land and water rural transport infrastructure will be complementary to improve mobility and access of rural women and men.*
d. *Rural transport modes and services will be affordable, equitable, dependable and safe.*

3.0 CURRENT STATUS AND THE CHALLENGES

3.1 Demand for Rural Transport

Empirical studies conducted in early 2000s show that there exist considerable transport burdens on rural households in Cambodia. An average household spends approximately 6.7 hours per day to satisfy its household travel and transport needs. This figure is higher than comparable available figures from a number of Asian and African countries. The average amount of time an average Cambodian household spends on transport is close to the working hours that a developed country full-time worker spends on a job. Members of an average household have to travel 23 km per day to satisfy household transport needs. They cover a substantial portion of this distance on foot and on poor roads. An average household in Cambodia makes transport efforts of 58 tonne-km (carrying one tonne load over a distance of 58 km) per year.

However, the same studies show that there are some positive aspects of the rural travel and transport situation in Cambodia: household transport burdens are shared equally by both women and men; and the ownership of transport modes is considerable in rural Cambodia. One of the studies concluded that about 70% of the households in two villages in Siemreap Province had at least one bicycle.

The conclusions from the above paragraphs are that there exist considerable transport burdens in rural Cambodia; people are willing to invest in vehicles that will improve their mobility; and an improved rural road network will play an important role in reducing this burden, thereby improving the welfare of rural people.

3.2 Supply of rural road infrastructure and services

The length of the rural road network is approximately 28,000 km, or about 70% of the total road network, and is under the responsibility of the Ministry of Rural Development (MRD). The remainder of the network is known as the national road network and falls under the responsibility of the Ministry of Public Works and Transport (MPWT). An overwhelming majority of passengers and cargo in Cambodia is carried by road transport. The rural road network comprises administratively categorised Tertiary road (T), Sub-tertiary Road Type 1 (ST1), Sub-tertiary Road Type 2 (ST2) and Sub-tertiary Road Type 3 (ST3). ST3 roads form about two thirds of the length of the rural road network; the remainder being T roads (8%); ST1 roads (11%) and ST2 (17%).

In spite of a major effort to improve the road network since mid-1990[1], it is still in poor shape. While a fourth of the national road network is in good to fair condition, only a sixth of the rural road network is in similar condition. The quality of the rural roads deteriorates progressively from T roads where 63% are in poor to bad condition, to ST3 roads where the figure is 88%.

Transport services in rural Cambodia are mainly provided by the private sector. Traffic on rural roads mainly comprises numerous non-motorised modes

[1] 10 major foreign aided projects or programmes have been implemented, or are being implemented, for rural roads improvement since 1998. The total value of these projects is approximately US$ 125 million.

(predominantly bicycles) and motorcycles, and conventional motorised transport modes make up only a small proportion of the traffic volume. It appears that the rural roads are adequately served by transport services and modes, and there are no significant immediate concerns about the operations and availability of transport services and modes in rural areas.

3.3 Challenges

The RGC faces many challenges in meeting its vision and goals for rural roads. The government has limited financial resources and limited institutional capacity. The challenges it faces and the policy directions it will follow are set out in the following chapters under four headings:

(i) Programming and planning
(ii) Financing
(iii) Sustainability
(iv) Institutions.

4.0 PROGRAMMING AND PLANNING POLICY DIRECTIONS

4.1 Road Inventory

Objective

a. To have a reliable database of the rural road network and related infrastructure to enable informed decision making.

The Context and issues

A reliable road inventory is essential for the planning, development and management of a road system. Although significant progress has been made in the establishment of a rural road inventory in some areas of Cambodia, the country still lacks a comprehensive inventory. Detailed inventories of rural infrastructure, including roads, have been completed in 37 districts in four northern provinces under a bilateral donor assisted project. A spatial database, and a detailed attribute database which is linked to the spatial database, have been created, but the roads have not been given unique identification numbers. In addition, IRAP/GIS units have been set up at MRD headquarters and in the four provinces, which include the procurement of necessary hardware and software for a fully functional GIS unit, as a part of the effort to update and manage the data internally.

The policy direction

a. It will be a top priority of MRD to complete the Cambodia-wide rural road and related infrastructure inventory.
b. Efforts to capture the spatial and attribute data in an electronic database will continue. Each rural road will be categorised and assigned a unique identification number.
c. IRAP/GIS units at MRD headquarters and PDRD offices will be expanded and strengthened for the effective management of the rural infrastructure database.

4.2 Investment Prioritisation

Objective

a. At the strategic level, to target rural road investments to maximise positive impact on the poor, and to improve the overall connectivity of the transport network.
b. To prioritise rural roads at the project and programme levels to maximise economic, social and environmental benefits and to minimise costs.

The Context and issues

Geographical targeting of road investments is increasingly being used as a tool to maximise impact on the poor, but has not so far been used in Cambodia due to the non-availability of appropriate data. In Cambodia the proportion of population below the poverty line is higher in the north and north-east, but the number of poor people

per unit area is higher in the south, mainly due to the higher population density in the south. Apart from poverty, other criteria to consider in the geographical targeting of rural roads are the developmental potential, especially agriculture, and giving preference to areas that have not so far received significant rural road investment.

MRD does not have a specific objective method to prioritise rural road investments. Various simple economic appraisal models have been adopted under donor assisted projects, and 13 provinces have experience of the use of a computerised road maintenance management system. Since late 1990s MRD has been using Integrated Rural Accessibility Planning (IRAP), which uses participatory approaches to develop District Infrastructure Development Plans. An action plan that provides a list of potential interventions in five different sectors including transport and trading infrastructure accompanies each development plan. These potential interventions mainly reflect the community wishes and may not necessarily be economically optimal.

The policy direction

a. At the strategic level, MRD's geographical targeting for future rural road investment will give priority to provinces with a high density of rural poor to maximise the investment impact on the poor, and provinces with developmental (including tourism) potential, while having due regard to transport connectivity aspects.
b. For project or programme level road investment assessments, MRD will establish a road development prioritisation methodology that will use multiple criteria connected to economic, social and environmental aspects.
c. MRD will progressively expand the road management capacity in the rest of the country, and a standard accepted system will be used for prioritising road maintenance investment.
d. MRD will strengthen the rural road maintenance office in the Department of Rural Roads and rural road maintenance sections under PDRD offices.

4.3 Rate of Improvement of Network

Objective

a. To improve the rural road network at a sustainable rate.

The Context and issues

An analysis of resource requirements for the improvement and maintenance of the network has been carried out using different improvement rate scenarios for different rural road categories. Under the most feasible, although slightly optimistic, scenario all the rural roads can be brought under maintainable conditions within the next 20 years with the target for T, ST1, ST2, and ST3 roads being 7, 10, 15 and 20 years respectively.

The policy direction

a. MRD will plan the future development of the network at a rate that is commensurate with the expected amount of funding available from different sources for development and maintenance.

4.4 Inter-modal Integration

Objective

a. To ensure that different transport modes, mainly land and water transport, complement each other.

The Context and issues

Rural water transport (RWT) plays an important role in rural people's lives in Cambodia. Over a third of the rural population in 68 districts and 16 provinces of Cambodia live in areas where RWT is of major or significant importance. Many rural peoples' livelihoods are linked to RWT through the operation of riverine transport services, trading activities, construction and repair of boats, and maintenance and repair of engines. There is also evidence that the proportion of poor people living in many RWT dominated areas is higher than other areas.

In the past there have been no specific efforts to plan the rural road and RWT networks in a coordinated way so that they complement each other. However, a master plan for waterborne transport on the Mekong river system in Cambodia has been developed which contains different options for the development of RWT, and recommendations to enhance the synergies between rural roads and RWT.

The policy direction

a. MRD will review and accept the relevant recommendations in the master plan for Waterborne Transport in Cambodia.
b. MRD will liaise with MPWT to explore the possibility of transferring its RWT related responsibilities to MRD, and will take necessary steps to reach an agreement with MPWT.

4.5 Rural Road Design Standards

Objective

a. To ensure that all rural roads are built to appropriate standards.

The Context and issues

Since there are no universally accepted standards for rural roads in Cambodia, they have been built to meet differing technical standards. Attempts have been made in the past to develop and harmonise rural road standards, but they were not successful for various reasons including non-dissemination of the standards to the field level offices. Interim standards have now been developed by MRD, and the development of functionally-based rural road standards will continue. Outstanding issues include the adaptation of the standards by MRD, and whether to have minimum standards for

sub-tertiary roads. The main argument against absolute minimum geometrical and technical standards for all sub-tertiary roads is that there is a need to permit sufficient flexibility to design different sections of the road according to the differing local environments and needs along the road length.

4.4.3 The policy direction

a. MRD will adopt the interim standards till the final standards are available.
b. MRD will endeavour to complete and adopt the final standards within the shortest possible time.

4.6 Rural Transport Services

Objective

a. To ensure that rural transport services meet the mobility needs of the rural population including those of vulnerable road users (e.g. poor, women and physically challenged people).

The Context and issues

In Cambodia the provision of road infrastructure is the responsibility of the public sector, and the operation of transport services is the responsibility of the private sector. However, such a model does not necessarily lead to the improvement of transport services on developed roads. There are a number of factors that may influence the availability of affordable commercial public road transport services including the private sector capacity to assume such a responsibility, population density (to achieve economies of scale for the transport service operations), and income levels of the service users (affordability).

An issue linked to the transport services is that the poor are least likely to benefit from the road improvement as they are unlikely to own vehicles to use on the roads, and have low fare paying abilities. Also the transport services operations are not likely to be profitable in sparsely populated areas, where the proportion of the poor is higher, due to low demand density. The available evidence shows that non-motorised transport vehicle ownership is high in rural Cambodia, although no social-class disaggregated ownership data are available. Anecdotal evidence suggests that the lack of transport services is not a major obstacle to rural mobility in Cambodia.

The policy direction

a. MRD will continue the policy of non-intervention in the transport services sector, but will focus on removing physical obstacles through the provision of appropriate infrastructure.

4.7 Gender

Objective

a. To ensure that both women and men benefit equitably from the development of rural transport including rural road infrastructure.

The Context and issues

Gender equality and empowering women is one of the nine CMDGs. Empirical study results from Cambodia and other countries in the region suggest that there exists a positive link between rural road development and the achievement of indicators related to CMDG 3. The NPRS stresses the need for addressing women employment issues through appropriate policies and programmes to reduce poverty. The concept of the involvement of women in roadworks in Cambodia is not new - a number of rural road projects have employed women in the past including in the technical supervision of the project. Participation of women at all stages of the project cycle is required to address the issues linked to gender and transport as well as to promote gender equality.

The policy direction

a. MRD will mainstream gender issues in all stages of the project cycle – identification, preparation and design, appraisal, implementation and supervision, and monitoring and evaluation.

4.8 Environmental Considerations

Objective

a. To develop rural road infrastructure in an environmentally sustainable way.

The Context and issues

CMDG 7 is linked to environmental sustainability. The major negative environmental impacts directly associated with rural transport infrastructure development in Cambodia are serious dust pollution from unsealed roads and quarrying operations to extract surfacing gravels. There may also be a number of other environmental risks including: environmental degradation arising from logging activities due to increased access to remote areas; and, changes in the natural hydrology.

MRD's current approach to tackling environmental issues is on a project level basis, and the level of rigour fluctuates with the requirements of the funding agency. There is a need to institutionalise the tasks of environmental assessments in the design and implementation of rural roads, but the current capacity of MRD headquarters and provincial offices to address the issues is weak.

The policy direction

a. MRD is committed to mitigate any negative environmental impacts at all stages of provision and production of the rural road infrastructure.
b. MRD will develop comprehensive guidelines that will be followed by all involved in the planning and development of rural road infrastructure.
c. MRD will mainstream environmental safeguards into the planning and development of rural road infrastructure.

4.9 Road Safety

Objective

a. To minimise the number of traffic accidents on rural roads.

The Context and issues

Cambodia has one of the highest fatality rates in the region on the basis of the number of vehicles in use and the length of the paved road network. According to the admittedly incomplete data available, there are on average 23 daily casualties (3 fatalities and 20 injuries) due to traffic accidents. The number of accidents is expected to grow exponentially if no significant action is taken. The costs of traffic accidents have been estimated at over three percent of Gross Domestic Product (GDP). Motorbikes are involved in the overwhelming majority of the accidents (approximately three quarters). Children and senior citizens represent a high percentage of the pedestrian and bicycle accident victims.

Poor road design and condition contribute to road accidents. The problem of traffic accidents is addressed in the context of a draft new Traffic Law. RGC has already created a National Road Safety Committee to coordinate resources and to increase collaboration, cooperation and facilitation between ministries and related institutions. A national road safety action plan has also been drafted.

Disaggregated accident data on primary and rural road networks are not available, but in relative terms, it is believed that the number of accidents on unimproved rural roads is lower due to lower traffic volumes and velocities. However, motorcycles comprise a large proportion of traffic volumes on rural roads, and are involved in the majority of road accidents.

The policy direction

a. MRD will proactively pursue road safety related issues in the planning and development of rural roads so that appropriate geometrical design standards are followed, traffic signs are erected, and potentially hazardous sections are protected using traffic calming devices. If necessary, MRD will seek assistance from MPWT or international experts on these issues.

b. MRD will cooperate with relevant organisations to reduce traffic accidents and casualties on rural roads, including encouraging educational and awareness campaigns.

4.10 HIV/AIDS

Objective

a. To reduce the risk of transmission of HIV/AIDS among construction workers, transport service operators, the communities living along rural roads corridors, and other vulnerable groups.

The Context and issues

A major threat to Cambodia's development is the high prevalence of HIV/AIDS, and one of the CMDGs is connected to HIV/AIDS (CMDG 6). Although improved rural transport brings many economic and social benefits, it can also facilitate the spread of HIV/AIDS into rural areas. There are several specific links: (i) short term risks during the construction period that are linked to the migrant workers employed on construction, who can be both vulnerable to contracting the infection and responsible for spreading it; (ii) long term risks from the operators of freight and passenger transport services (drivers and conductors) who are known to be a high risk group, and improved rural transport that increases the mobility of the rural population.

However, there are now a number of tested measures that can be adopted to mitigate the risks of the increased incidence of HIV/AIDS.

The policy direction

a. MRD will take steps to mitigate the risks of the increased incidence of HIV/AIDS due to the improvement of rural transport infrastructure. Measures will include: use of local resource based technology that encourages the use of local labourers; and, clauses in contract documents that require the contractors to take specific action to mitigate the risks of increased incidence of the infection.

4.11 Stakeholder Participation

Objective

a. To ensure that stakeholders' views are reflected at all stages of the road development project cycle.

The Context and issues

Stakeholder participation in the planning, development, maintenance and management of rural roads is crucial for their sustainability. The main rural road stakeholders include the communities living along the road corridors, other road users such as transport operators, government organisations, and investors. The involvement of stakeholders at the different stages of the road project cycle is not well-established in Cambodia. However, MRD has gained valuable experience in the involvement of stakeholders while using the IRAP process to develop district plans, as stakeholder participation is ingrained in the IRAP process.

The policy direction

a. MRD will integrate stakeholders' participation into all stages of the road development project cycle - from planning to monitoring and evaluation of the project.
b. MRD will endeavour to develop comprehensive stakeholder participation guidelines for different stages of a road project.

5.0 FINANCING POLICY DIRECTIONS

5.1 Overall Funding

Objective

a. To secure adequate and stable resources for the sustainable development and maintenance of the rural road network.

The Context and issues

Estimates have been made of the resource requirements for the improvement and maintenance of the rural road network using different rate of improvement scenarios. The most feasible scenario, although slightly optimistic given historical experience, suggests an average cost figure of US$ 31 million per year over the next ten years. This level of investment will require an increase of 55% from the 2005 funding level for rural road improvement and maintenance. The average funding gap to pursue the strategy is currently estimated at just over US$ 17 million per year.

There are three main potential sources of funding: donors, the RGC, and fees levied locally (e.g. on road users). However, experience shows that the mobilisation of funds from fees levied locally is difficult in practice. Therefore, the main potential sources are donors (at least in the short to medium terms) and the RGC,

The policy direction

a. MRD will endeavour to mobilise additional resources from RGC and donors.

5.2 Improvement Versus Maintenance Funding

Objective

a. To preserve the existing rural road infrastructure assets and to develop new assets in a manner that ensures their preservation.

The Context and issues

A major issue in the sustainable development of rural roads is the adequacy of maintenance. There are countless examples of roads that have been constructed or rehabilitated, and then allowed to fall into a state of disrepair until another rehabilitation project restores the road. Many economic studies have been conducted that show conclusively that this cycle of construction and rehabilitation is more costly to the owner of the road than regular maintenance after improvement. The economic and social costs of poor access add substantially more to these economic costs of inadequate maintenance.

The estimates referred to in 5.1 above of the average funding gap over the next ten years indicate that there is a larger shortfall of maintenance funding than of improvement funding, compared with current firm commitments and trends of the resources that might be available.

The policy direction

a. Preservation of existing road assets will be the top priority of MRD, and therefore maintenance funding will get priority over improvement funding.

b. MRD will only fund the improvement of rural road infrastructure when there is assured adequate maintenance funding for the improved infrastructure.

c. One of the criteria for investment decisions will be a comparison of the life cycle costs of different options.

d. MRD will seek the appropriate institutional mechanisms such as the formation of an inter-ministerial committee to resolve maintenance funding issues with the Ministry of Economy and Finance (MoEF).

6.0 SUSTAINABILITY POLICY DIRECTIONS

6.1 Organising and Implementing Maintenance

Objective

a. To maximize the effectiveness and minimise the costs by managing maintenance operations in an effective and sustainable way.

The Context and issues

PDRDs, as a decentralised arm of MRD, are currently involved in the development and maintenance of rural roads. The Commune Councils (CCs) have also been developing some rural roads with funding from the Seila programme channelled directly to them. The CCs are being assisted by the PDRDs since the technical capacity at the commune level is almost non-existent, and a fully-developed maintenance system is yet to be established at the commune level. Given the risks involved in the delegation of responsibilities at the commune levels for organising and carrying out maintenance, the most appropriate option is to delegate responsibilities at the provincial level to the PDRDs so that they coordinate with the CCs and devise the best strategy to organise and carry out rural road maintenance. PDRDs may liaise with the CCs to explore the possibility of mobilising local resources for road maintenance. Where feasible the CCs may raise funds locally and use them for road maintenance.

The policy direction

a. MRD will delegate the responsibilities for organising and implementing the maintenance of rural roads to the PDRDs.

6.2 Vehicle Overloading Control

Objective

a. To minimise damage to rural roads caused by overloaded vehicles, and thereby to reduce maintenance costs and loss of potential benefits of transport due to damaged roads.

The Context and issues

Overloading is a major problem for all types of roads in Cambodia. Overloading severely accelerates road deterioration, and increases future maintenance and investment requirements. Overloaded vehicles also raise serious safety concerns.

There are no simple solutions to overcome overloading problems. Private sector operators cannot be relied on to self-regulate. Unless there is a direct penalty to those who cause the damage, there is no incentive to restrict loads when competitors are not doing so. The potential solutions lie in the enactment of an appropriate law to control overloading and the enforcement of the law. RGC has recently enacted the Traffic Law that has specified maximum axle and overall loads for different vehicle types on Cambodian roads. However, the enforcement of the law is a major problem for rural roads given their dispersed nature. Cooperation from road users and the communities

living along the corridors is one of the keys to a solution. Some countries have been successful in winning support for overloading control through public awareness campaigns, and consultations with the key stakeholders including the truckers. There has also been an inter-ministerial declaration in 2004 that specified measures, including the construction of physical obstacles to bar the entry of bigger vehicles on some roads, to tackle the overloading problem, and that gave MPWT and MRD the responsibility for implementing the measures.

The policy direction

a. MRD will identify rural roads with chronic overloading problems (e.g. roads connected to quarries) and will recommend to appropriate authorities the re-classification of the roads according to their function.
b. MRD will endeavour to find a way to control the overloading on rural roads including consultation with stakeholders to find practical overloading control solutions.

6.3 Involvement of Private Sector in Rural Road Development & Maintenance

Objective

a. To make the development and management of rural roads more efficient and cost-effective.

The Context and issues

The National Strategic Development Plan (NSDP) and the "Rectangular Strategy" of RGC have highlighted the importance of the private sector in Cambodia's development. In the construction industry the private sector comprises individual entrepreneurs (often informal), small and medium enterprises (SMEs) and international companies. The local construction industry capacity is weak in Cambodia. However, there are signs that the capacities of local companies are progressively growing. With the increased availability of Labour-based Appropriate Technology (LBAT) contractors, with experience under different projects, the contracting of the rural road works is increasingly more feasible.

The policy direction

a. MRD will use the private sector to the maximum extent possible for the rural road works. The public sector role will mainly be linked to the management of rural roads.

6.4 Use of Local Resource Based Technologies

Objective

a. To use appropriate local resource based construction and maintenance technologies that minimise the whole life costs of the assets, that are sustainable, and that are conducive to employment generation.

The Context and issues

A high proportion of rural roads in Cambodia have used lateritic gravels for surfacing (roughly 40% for all rural roads and 70% for tertiary roads). Several empirical studies in the region have concluded that gravel is not the best surfacing solution under all circumstances. There are a number of conditions that need to be satisfied for gravel to be a viable surfacing option including conditions relating to the level of traffic, and rainfall intensity. Gravel as an initial material for stage construction is also found to be disadvantageous if the seal is not applied within six months or before the rainy season. Gravel also poses significant safety, health and environmental problems due to the dust generated by traffic. It is now widely believed that gravel is expensive when the whole life-cycle costs of different surfacing/paving options are evaluated. There exist a number of proven alternatives to laterite surfacing, and a number of studies are currently being undertaken in Cambodia, Vietnam and Laos on this issue. Guidelines on surfacing alternatives are being developed. These guidelines will facilitate informed decisions on low-cost surfacing/paving options.

The use of labour-based (L-B) methods is preferable to equipment-based methods for roadworks in Cambodia, both for project level reasons (e.g. financial cost advantages) and for national macro-economic reasons (e.g. higher multiplier effects). A Cambodian study has estimated that L-B methods have the potential to generate 18 times more employment than equipment-based methods, and concluded that the use of L-B methods can generate work for up to 6.5 million persons per year from the development and maintenance of the existing maintainable network. L-B methods are also cost-effective. The study concluded that the cost of the L-B and equipment-based approaches in Cambodia will be equal only when the wage rate becomes US$2.1 per day, which is almost double its current level. There are a number of obstacles to mainstreaming L-B methods in roadworks including existing tender documents that have inherent biases against L-B methods, sufficient availability of appropriate contractors and local labourers in some areas, and the difficulties linked to the technology management. However, Cambodia now has considerable experience in the use of L-B methods at the levels of both contractors and field officials.

The policy direction

a. MRD will carefully examine different alternative surfacing/paving study results and evidence, and will adopt options that are suitable for Cambodia and have the lowest whole life-cycle costs.

b. MRD will introduce the alternative surfaces/pavements progressively according to technical and economic justification.

c. MRD will encourage the use of appropriate technologies for the development and maintenance of rural roads that favours the use of local labourers and materials but does not undermine quality and cost aspects.

d. MRD will use a composite design and construction (e.g. spot-improvement) approach to ensure that resources are used most efficiently.

6.5 Monitoring and Evaluation

Objective

a. To measure and assess the performance of rural road projects and programmes in order to ensure that they achieve the intended results and to make informed decisions on the design of future interventions.

The Context and issues

MRD currently does not have a systematic monitoring and evaluation (M&E) system. M&E in the past has generally been carried out by individual projects without the integration and dissemination of results within MRD. Although the Department of Rural Roads has an M&E Office, it does not have the capacity to undertake the complex tasks of M&E.

With the growing worldwide emphasis on results-based M&E systems, the tasks of carrying out the M&E of investments become more complex. The results-based M&E system emphasises the monitoring of outcomes, or developmental changes, rather than the previous emphasis on monitoring outputs only. This approach necessitates the introduction of outcome monitoring that tracks changes from a baseline to the end-project outcome, and outcome evaluation that validates the results and explains why they were or were not achieved.

The policy direction

a. MRD will endeavour to undertake a comprehensive results-based M&E approach to increase the effectiveness of rural transport interventions and the approach will be mainstreamed gradually.
b. MRD will make provision for technical audits in all major infrastructure projects.
c. MRD will review the organisational arrangements for M&E within MRD to improve M&E capacities.
d. MRD will introduce a comprehensive and streamlined reporting procedure between headquarters and field offices and between headquarters and project offices.

7.0 INSTITUTIONAL POLICY DIRECTIONS

7.1 Delegation of responsibilities to local government

Objective

a. To manage the production, provision and maintenance of rural roads in an efficient and cost-effective manner.

The Context and issues

MRD is the Road Authority responsible under the draft Road Law for the planning, design, development and maintenance of rural roads, although the law makes provision for the delegation of MRD's functions to the CCs if MRD deems it appropriate, without relinquishing MRD's full accountability as a Road Authority.

Cambodia is in the early stages of its local government reforms. The local government system is still evolving through the D&D process, and the RGC is currently implementing a five-year national D&D programme. Outputs of the programme include the revision of management systems at the provincial and district levels and the strengthening of the commune/sangkat management system. Given the ongoing evolvement of the local government system and uncertainties about the final shape it will take, the PDRD is uniquely placed to carry out the MRD responsibilities in relation to the day to day management of rural roads as well as the implementation of the construction and maintenance works.

The policy direction

a. The primary role of MRD will be limited to policy and strategy formulation; setting standards; development of guidelines on different aspects of the development and management of rural roads; and securing an adequate and stable flow of resources.
b. MRD will not generally be involved directly in the provision and production of rural road infrastructure works.
c. MRD will delegate the day to day management, and the implementation of construction and maintenance works to PDRDs.

7.2 Institutional Capacity Development at the National and Provincial Levels

Objective

a. To develop institutional capacity for effective development and management of roads at all levels.

The Context and issues

The Department of Rural Roads (DRR), a department within MRD (established in 2002), is mandated to carry out central rural road related responsibilities. The head of the department is the Director who is supported by a number of deputies. The department comprises five offices performing distinct functions. The counterpart

office at the provincial level of DRR is the Provincial Office of Rural Roads (PORR) in each PDRD. A rural road unit also exists in each District Office of Rural Development (DORD).

The organisational arrangements of DRR are adequate to carry out its mandated responsibilities. However, only a few officials in the department have sufficient qualifications and experience in road planning, development and management. In addition, a number of the officials are involved in different MRD projects. The situation in PORRs is weaker. Only a few provinces have adequate qualified staff to carry out rural road management responsibilities. Although the communes are involved in the development of rural roads, they do not have any technical capacity, and the current CC support arrangements, involving technical support from the centre, are unsustainable.

The policy direction

a. MRD will undertake a review of the institutional capacity for the rural road sub-sector, and will streamline the institutional structure at all levels;
b. MRD will take all steps necessary to develop the institutional capacity at different levels of the organisation, including working with educational and training institutions.

7.3 Communication and Coordination

Objective

a. To develop effective communication and coordination mechanisms to facilitate rural road infrastructure development and management.

The Context and issues

Effective communication and coordination (C&C) within MRD and between MRD and other stakeholders is necessary for a number of reasons including the efficient use of scarce resources, and to pass the lessons learnt from one project/programme to another. The current C&C arrangements within MRD, and between MRD and other road stakeholders, need to be strengthened. The only standard channel of C&C between provinces and MRD headquarters is routine reporting (e.g. monthly and annually). MRD needs to develop a C&C structure: (i) between different projects within MRD; (ii) between MRD, CCs and the Ministry of Interior (MoI); and (iii) between MRD, MPWT, MoEF and other RGC organisations.

The policy direction

a. MRD will develop more effective communication and coordination arrangements and mechanisms between MRD HQ and its field offices, MRD & other ministries, MRD & CCs, and MRD & donors.

Glossary

Cambodia Millennium Development Goals (CMDGs): A total of 191 United Nations Members States made a commitment in 2000 to achieve a set of eight goals, known as the MDGs, by 2015. They are: Eradicate extreme poverty and hunger; Achieve universal primary education; Promote gender equality and empower women; Reduce child mortality; Improve maternal health; Combat HIV and AIDS, malaria and other diseases; Ensure environmental sustainability; Develop a global partnership for development. Cambodia Millennium Development Goals (CMDGs) has a total of nine goals, include an extra goal that relates to de-mining, unexploded ordnance (UXO) apart from the eight internationally accepted MDGs.

Composite design and construction: A process whereby a road is designed and constructed according to the environment (gradient, soil, hydrology, etc) and function (traffic) along its alignment. This will result in different sections of the road having different surfacing/paving, geometric dimensions, etc., to respond to the specific conditions. The result of this approach is a rational use of resources along the road length.

Integrated Rural Accessibility Planning (IRAP): IRAP is a need-based, multi-sectoral, sensitive methodology for local level planning. It is often defined as a process to capture, through questioning and analysis, the particular pattern of isolation of a community and hence derive a hierarchy of actions to be taken to reduce such isolation. Road improvements are a possibility, but so also are improvements of tracks and footpaths, propagation of intermediate means of transport (IMT), measures to improve conventional transport, and relocation of social and economic services.

Labour-based technology: A technology type that maximises opportunities for the employment of labour (skilled and unskilled), while supported by light equipment, under strict conditions of cost competitiveness, acceptable engineering quality standards, and timely implementation.

Roads: Refers to a full size roadway, including the Right-of-Way.

Rural road/path: As per the draft Road Law rural road/path includes: (i) road which is a bifurcation from the National Road to commune and village; (ii) road which is a bifurcation from the Provincial Road to commune and village; (iii) road which is a bifurcation from district capital Road to district capital; (iv) road which is a bifurcation from district capital Road to commune; (v) road which links a commune to another commune; (vi) road from a commune to a village; (vii) road from a village to another village; (viii) road which links with another road located within rural area.

Rural water transport: It includes both inland and coastal water transport used by the rural residents and helps rural people in carrying out their livelihoods.

Sub-tertiary Road Type 1 (ST1 road): Road that connects district capital to commune.

Sub-tertiary Road Type 2 (ST2 road): Road that connects commune to commune

Sub-tertiary Road Type 3 (ST3 road): Road that connects commune to village or village to village

Tertiary roads (T road): Road that connects district capital to another district capital

Tonne-km: A measure of transport effort. 1 tonne-km means carrying a load of one tonne over a distance of one km.

Transport services: Commercial transport services include both passenger and freight transport services and also include both motorised and non-motorised services.