

PROGRAM OF RURAL ROADS

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ABSTRACT

The basic infrastructures, mainly those related to improve rural accessibility, have a major role in the economic and social development strategy of the rural area.

We detail in this paper, the development and roll-out of the Second National Program of Rural Roads (NPRR-2) which constitute the response of the Roads and Road Traffic Department (DRCR) to give road access to Rural population.

The analysis of the current situation and the environment of road infrastructure show the alertness to improve road accessibility for rural population where poverty is spreading. For that purpose the DRCR has imagined a national road program to increase the rural population accessibility from 56% to 80% by 2015 by building 1500 km rural roads each year which constitute a global need of 15000km of rural road and 11 billion MAD.

In this paper, in a first step we will study the environment in order to discover the uniqueness of the situation, which is 6 million rural populations without road access. In a second step we will explore the key changes (increased rural poverty, government strategy, funding, governance, democracy, safety...) and in a final step we will create innovative action options to raise the bar for positive outcome of rural roads.

1. STEP 1 – BE ALERT TO DISCOVER THE UNIQUENESS OF THE SITUATION

Enterprise's current situation and organization

Organization and human resources:

Roads and Road Traffic Department (DRCR), coming under the Ministry of Equipment and Transport is a public organization created to construct, operate and maintain road infrastructures in Morocco.

DRCR has 45 territorial representative agencies with 29 Provincial Offices (DPEs) and 16 Regional Offices (DREs), and employs 7000 persons.

Managed road network:

DRCR manages a perpetually changing and developing road network. This network comes to 57.226 Km, 32.086 Km of which are surfaced roads (i.e. 56%) and 25.140 non-surfaced roads. In addition, 650 Km of highways are put into service and are contracted out to the Highways of Morocco National Company (ADM), the managed network represents an asset of 30.000 million DH.

Financial resources

DRCR resources are 3 200 million MAD / year coming from:

- Special road fund (fuel tax): 2000 million DH
- Government budget: 600 million MAD
- Partnership : 650 million MAD mainly :
 - Government: 1500 Local collectivity, 16 regional council , 60 provincial council, other 100 government organizations
 - 1000 Non governmental organization
 - Private sector (100 key account: Lafarge, Holcim , ...)

Enterprise strategy:

DRCR implements a road strategy centered on:

- Preserving the road heritage to improve the state of existing road infrastructures. The quantitative aim is to achieve annually 1000 Km reinforcement and 1000 Km surfacing and the qualitative aim is to keep the road network at least in its current state which is 64% at a good standard (Class A+B).
- Adapting the road network to traffic development to reduce vehicle traffic cost, improve the level of the service provided to the users, as well as for road safety by widening narrow roads, improving routes to ensure free flow, bypassing main urban areas, improving road safety, etc.
- Extending the road networks to improve Rural servicing in particular that of landlocked areas and accompany economic development project. The average construction rate of rural roads is 1000 km/year.

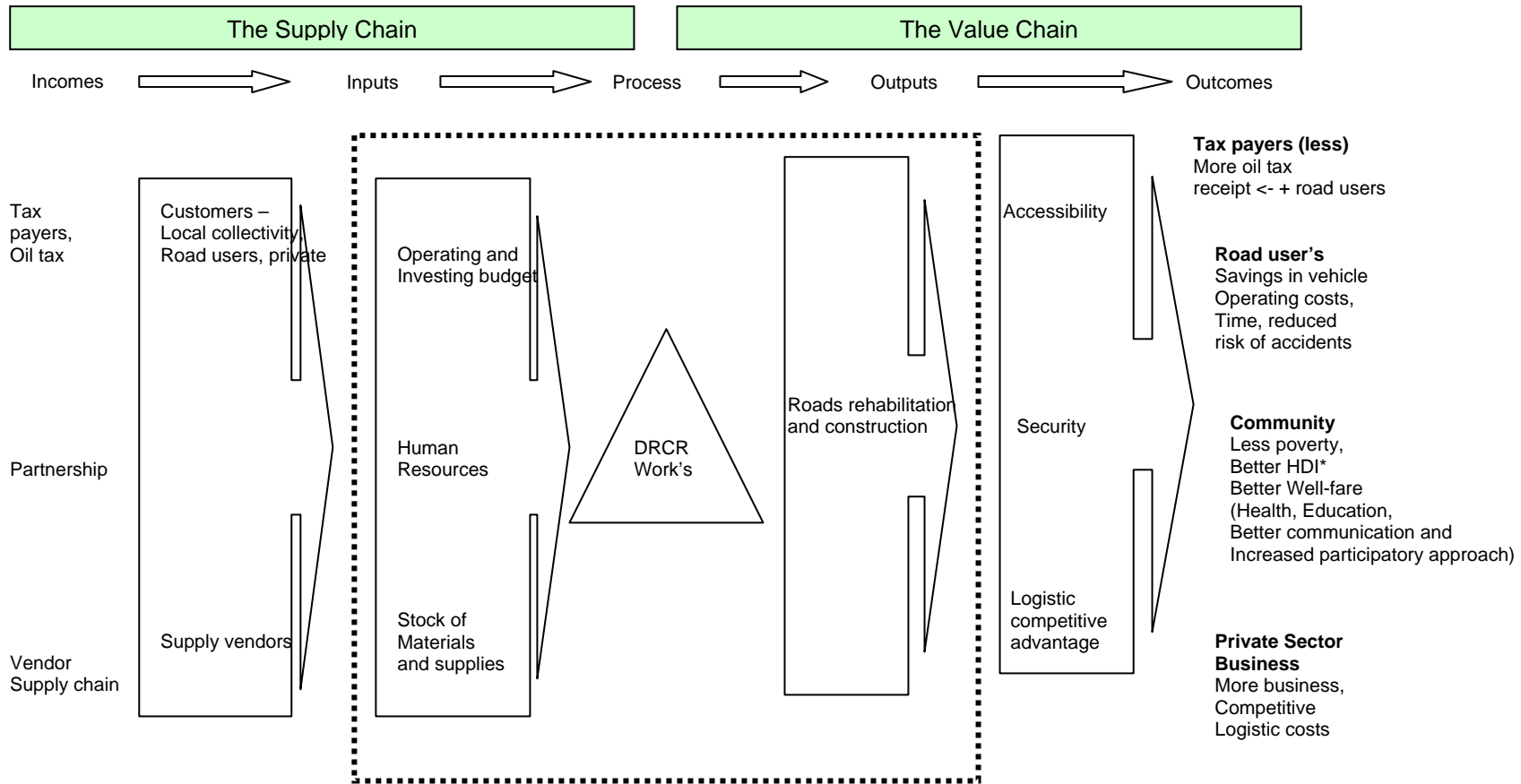
Some data on the Enterprise's Market (citizens /road users):

- Rural represents 45% of a total population of 30 Million.
- Demographic evolution of some regions requires development of transport infrastructure
- Economic conditions improvement:
 - GDP growth: 5%
 - Road traffic growth: Annual rate of 5%
 - Number of foreign tourists grows annually by 25%
 - Domestic tourism improvement through Buying power increase
- Decentralization has generated new regional administrative and economic poles
- Big gap between the ten provinces with the lowest accessibility, and the ten provinces with the highest accessibility
- 6 million of rural population haven't access to the road network

Alertness:

Huge part of rural population (6 million people) doesn't have the service of accessibility to road infrastructure which reinforces its poverty.

Supply and value chain:



*HDI: Human Development Index,

2. STEP 2 – EXPLORE THE KEY CHANGES

Increased rural poverty:

For Morocco to achieve the Millennium Development Goals, the development of rural areas will be critical. In Morocco, poverty is mainly rural, since nearly one in four Moroccans living in non-urban areas is poor compared to one out of ten in urban areas. Overall, 66 percent of the poor live in rural areas, About 19 percent of Morocco's population, equivalent to 5.3 million people, are estimated to be below the poverty line, and 44 percent, equivalent to 12 million people, are considered financially vulnerable (at or below 50 percent over the poverty line). The rural-urban gap is especially big for the extreme and very poor: three million rural people fall in this category, compared to 0.7 million for the urban population. Rural poor tend to live in large households, have few working members and an illiteracy rate of 67 percent, compared to 34 percent in urban areas, and live disproportionately in **isolated areas**.

New Government strategy

One of the Government's priorities noted in its 2020 Rural Development Strategy is to improve conditions of the rural population by **increasing their access to basic infrastructure and social services**. This strategy includes reducing the imbalance between the provinces better-off in terms of accessibility, and those worse-off. In the mid-1990s, the Government launched rural infrastructure programs targeted at the rural population in power, water and roads, and these programs are ongoing.

Inadequate Rural roads accessibility:

Most of the classified roads serving rural populations are unpaved, and the large majority is tracks with minimal or no technical standards. The very low standards of these roads cause frequent road closures or impassability by most motorized vehicles due to weather conditions and traffic-induced deterioration. The result is that only about 54 percent of the rural populations have access to roads that can be used reliably at all times.

Also, there is a big gap between the ten provinces with the lowest accessibility, and the ten provinces with the highest accessibility; in fact, there are large differentials among provinces in terms of the rural population's access to roads, which ranges from about 79 percent for the better served provinces to around 23 percent for the more isolated ones

Inadequate Quality of the road network:

Just over one-half (56.5 percent) of Morocco's classified road network is paved (totaling 32,700 kilometers), including 620 kilometers of motorways and some 18,000 kilometers of two-lane roads that meet international standards. These roads carry the heaviest inter-city traffic. Close to half of the classified paved network consists in narrow roads, less than 4.5 meters wide, or about the width of a conventional single-lane. Since the late 1990's, traffic has grown at a sustained pace of three to seven percent per year, and use of larger trucks for long-distance hauling is also growing. As a result, the road network is becoming increasingly inadequate, causing high costs of land transport and increasing traffic accidents and fatalities.

Large Size of the road network under the central government:

Morocco's classified road network that is under the jurisdiction of the Ministry of Public Works and Transport (MPWT) is large relative to the networks managed by other government levels. The Directorate of Roads and Road Traffic (DRCR) manages national, regional and provincial roads. Ideally, part of the provincial and regional roads should be transferred to the respective local governments (regions, provinces and *communes*). However, attempts in the early 1990s to make such transfers failed because: (i) of the weak financial and technical resources of local governments and slow progress with the Government's decentralization process that could have improved the shortfall in resources; and (ii) important investments needed to rehabilitate the roads largely exceeded the resources available locally.

Centralized road management and lack of capacity at the local level:

The DRCR, together with MPWT's 29 Provincial Offices (DPEs) and 16 Regional Offices (DREs), manages the classified road network. The number of DREs has gradually increased from four pilot offices in the mid-1990s to 16 offices today. The DRCR has already delegated several technical review functions to the regional and provincial offices. In practice, however, the deconcentration is limited, and the central level still retains many functions that could be passed on to the DREs and DPEs, such as programming the maintenance of provincial roads, since resident engineers are more knowledgeable of road condition and needs.

Lack of funding for road maintenance and extension:

The funding of roads extension and maintenance is insufficient and currently generated from three sources:

- The general budget (600 million MAD/Year).
- Partnership with local collectivities, non-governmental organization and private sector (600 million MAD / Year)
- The Road Fund (*Fonds Spécial Routier, FSR*) the FSR, a Treasury Special Account created in the early 1990s, is funded by a number of road user charges, notably fuel taxes, a vehicle registration fee, and an axle-load tax for freight vehicles. Initially, the FSR was established to finance maintenance of the classified road network only. However, in order to secure the financing necessary for improving rural accessibility in 1995, the Government increased FSR's revenues by raising fuel (gasoline and diesel) taxes. Consequently, in 2004, funding provided to the FSR amounted to MAD 2 billion, of which 1.3 billion came from fuel taxes.

A recurrent issue with Morocco's road system is the allocation of funding for road maintenance. In the last decade, funding improved with the creation of the FSR. Even then, funding for maintenance was not always sufficient.

Lack of global view of rural roads:

In the provinces, a diversity of sponsors and agencies are involved in financing and executing rural roads projects. This makes it difficult to obtain a global view of all projects, which is essential to facilitate integration of rural road programs with other sectors and activities planned at the local level.

Poor road safety:

With the increase in traffic and the low standards of the road network, traffic accidents, fatalities and injuries have grown at an alarming pace. In fact, the number of accident in the rural road network has increased by 30% in the last 10 years.

Lack of transport services for rural population:

Transport services in rural areas are provided by private operators. In the areas with thin demand for passenger services, due to low population densities, and where road conditions are generally poor, transport services are often limited to basic, once or twice daily bus service or all-wheel drive vehicles on the poorer roads. Where the roads are better, individual operators provide higher quality and more frequent service with smaller vehicles, often share-ride taxis. Regarding road freight, this industry was, until recently, highly regulated, which hampered competition and led to high freight tariffs and inadequate services.

High Tourism growth:

With the vision of Morocco 2010, Morocco attracts more and more of tourist, in fact, number of foreign tourists grows annually by 25%, besides, due to the national economic improvement, domestic tourism improves through buying power increase. And one of the most interesting attractions of Morocco is the Rural which increase the demand of rural roads.

Emergence of a democratic society:

Enhancement of participatory approach in a democratic society creates more requirements.

3. STEP 3 – CREATE INNOVATIVE ACTION OPTIONS TO RAISE THE BAR FOR POSITIVE OUTCOME OF RURAL ROADS

The analysis of theses key changes shows the urgency to deal with this ignored rural population, which pushed the DRCR to search innovative action to increase the accessibility of the rural population to the road network.

Increase the rural accessibility:

Studies of the impact of roads have revealed a strong inversed correlation relationship between rural poverty and the accessibility to the road network.

Part of the solution of rural poverty is to increase the rural population accessibility from 56% to 80% by 2015 through offering to the user's access to the Moroccan road network, in all weather time and at less than one kilometer from each locality of more than 50 households

The physical objective is to building 1500 km rural roads each year, which constitute a global of 15000 km with 11 billion MAD of need of funding.

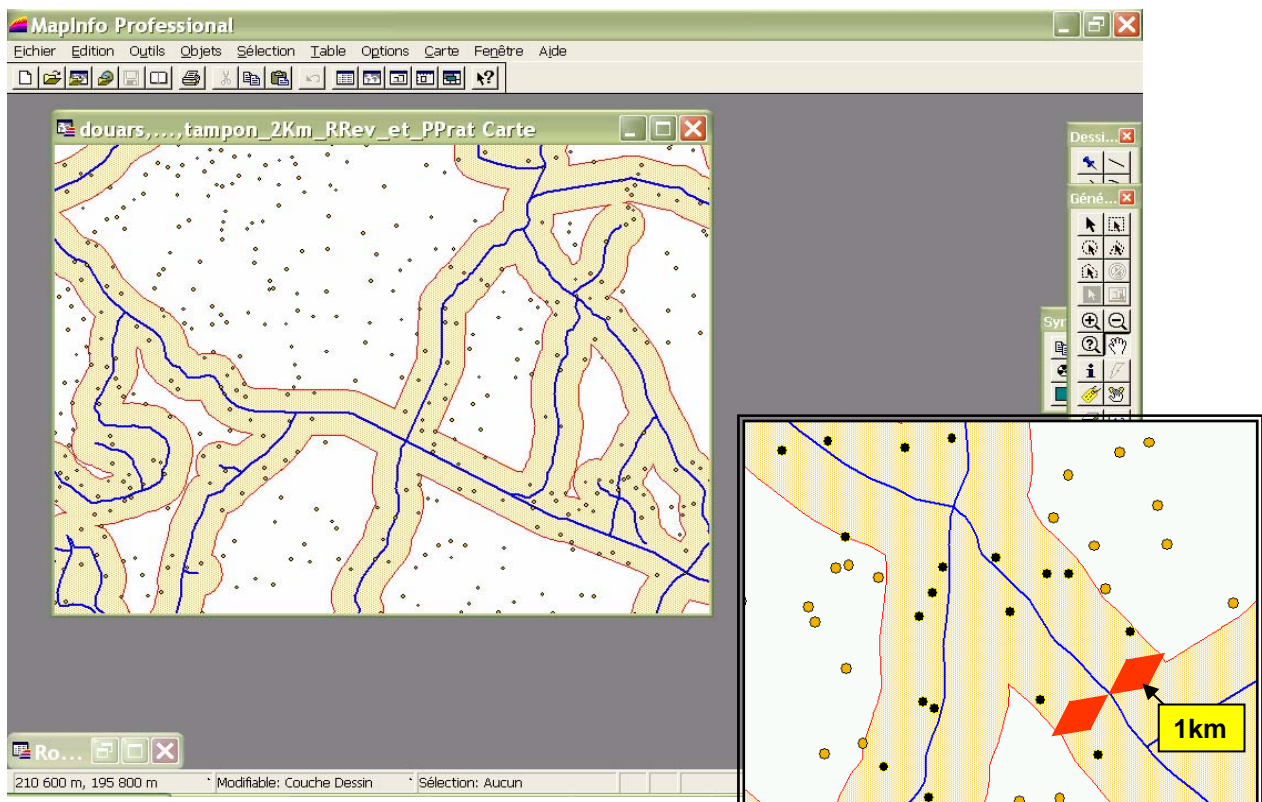
Accessibility as a new indicator of prioritization, monitoring and evaluation:

Population counted as having access to rural roads are those who live in villages (douars) of at least 50 households, and are located not more than one kilometer away from an all-weather road. This definition takes into account that:

- Providing rural access to highly dispersed populations is not presently affordable. (more than 50 households)
- A large proportion of the inaccessible rural population lives in mountainous areas, some at high elevations, which makes walking and access to basic services and economic opportunities difficult (less than 1 km) .

This new indicator is the key stone for all the steps of the NPRR-2 program, it serves to:

- Prioritize between potential projects instead of the NPV or the IRR.
- Place the human being in the center of the project.
- Choose between variants of technical pathway.
- Monitor the project.
- Evaluate the outcome of the program.
- Disseminate information to Citizens/Users/Partners.



DRCR as an implementing technical department used to keep only performance indicators to assess the quantity and quality of the means deployed in order to achieve Program objectives and mainly the number of kilometers of roads launched under the program.

With this new indicator, besides the output performance indicators, the NPRR-2 management will focus on the outcome indicators to monitor the Program's impact upon the targeted population by measuring the increase in rural accessibility (the main indicator

of the NPRR-2), the accessibility differential among provinces, and the degree of improvement of transport services:

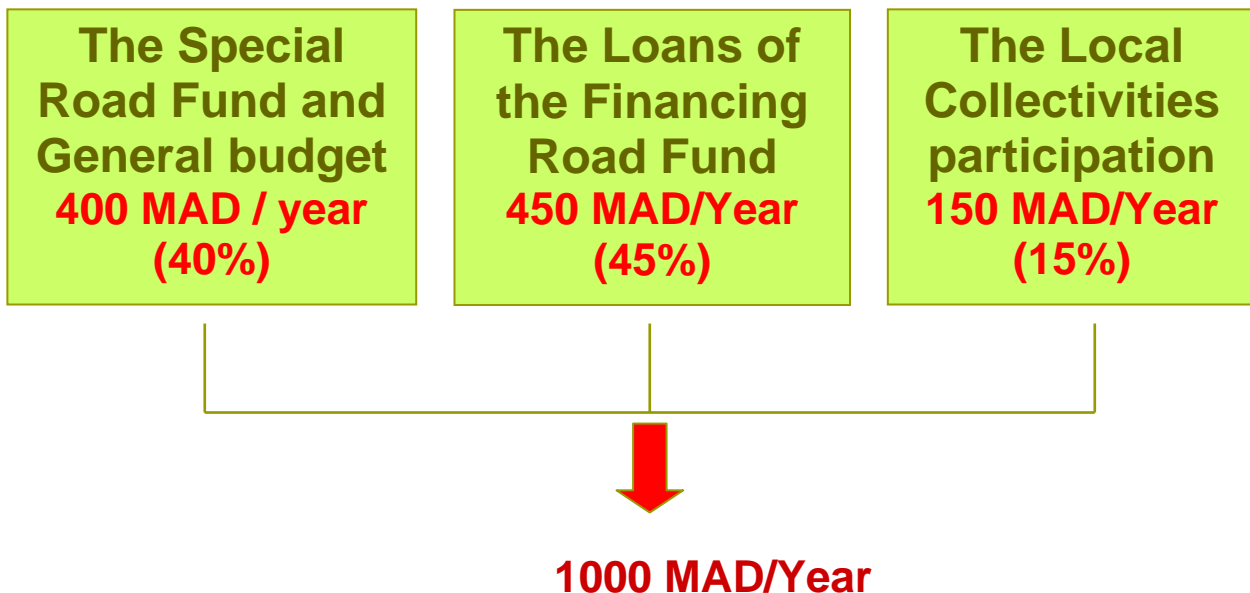
OUTCOME	Outcome Indicators
<ul style="list-style-type: none"> • Increase accessibility of rural population to all-weather roads • Reduce access differentials between provinces • Improve quality of service of inter-city transport for passengers 	<p>National Rural Road Accessibility Index (NRRAI) increase from 54 percent in 2005 to 67 percent in 2010 (63 percent by the Mid-Term Review and 80 percent in 2015 when the NPRR-2 is completed)</p> <p>Accessibility differential Indicator (ADI) improved from 0.43 in 2006 to 0.65 in 2015</p> <p>By project completion, at least 80 percent of roads in the sample will show quality improvement two years after open to traffic.</p>

Increase the funding:

As funding is not sufficient to achieve the purpose of this program, we had to think to creative action to increase the funding:

- The *Caisse pour le Financement Routier* (CFR) was created as a public entity with administrative and financial autonomy to mobilize financing for rural road development through borrowing, with the FSR being used to repay loans. The CFR's borrowing capacity will significantly increase the funding by 450 million MAD/Year available for rural roads.
- In order to increase the funding, and reinforce the participatory approach, we had to build partnerships with the local collectivities, which will bring 100 million MAD each year the funding of the NPRR2 program.
- We still have an option of action by increasing the Road Fund resources should be augmented to ensure that required funding that result from the rural roads programs are sufficient.
- More efficient use of resources will allow a slight improvement in the overall rating condition of the road system: concentrate the effort on current maintenance and use the adapted technical standards to the rural environment.

We see in the figure below the sources of funding and the increase in funding generated.



Bottom-up approach:

Road investments to be financed under the NPRR-2 were selected through a bottom-up, participatory planning process. This process was rather innovative in Morocco, both in terms of coverage and quality. During the Program's preparatory phase, a broad and thorough consultation was organized with local authorities to identify those road projects to be included in the Provincial Rural Roads Programs (PRRPs). The consolidation of all PRRPs constituted the Second National Program of Rural Roads (NPRR-2).

The inventory and pre-identification of roads were prepared by the Directorate of Roads and Road Traffic (DRCR) in close coordination with its deconcentrated offices. The pre-identified roads in the provincial programs were selected based on two analyses:

- The contribution to increasing accessibility, with priority given to the roads serving the largest amount of people and to those contributing to reduce the accessibility differential between provinces,
- The contribution to connectivity with the classified road network.

The inventory together with the pre-identified provincial programs, and the selection criteria that were used, were presented, during regional and provincial councils, to elected officials and local authorities. This allowed them to fully participate in the planning process, to confirm their priorities regarding local development, and to make a final selection of those roads to be included in the Provincial Rural Roads Programs (PRRPs). The regional and provincial councils also enabled validating the Program's implementation arrangements, the terms of financial participation, and local authorities' commitment to maintenance. The participatory planning process, which has now been achieved, can be considered as a success, both in terms of planning and outcome.

The outcome of this process was the signing of framework and specific agreements with the concerned local authorities. To date, all sixteen framework agreements and fifty-nine specific agreements have been signed respectively at the regional and provincial levels. Which imply that the local collectivity will have:

- Commitment to assume the Maintenance of the infrastructure
- Important financial contribution to the cost of the projects, the Local Authorities will finance 15% of all NPRR-2 Program, through the newly-created Financing Road Agency

Increase the capacity at the local level:

The DRCR should delegate more and more function to the regional level, and give more tools (GIS, HDM, RED) to help the DREs and DPEs managing the roads at the local level.

DRCR has to establish an assistance system to the local level human resources (both DRE/DPE and local collectivities) that will give them:

- Technical assistance
- External finance and accounting assistance and training

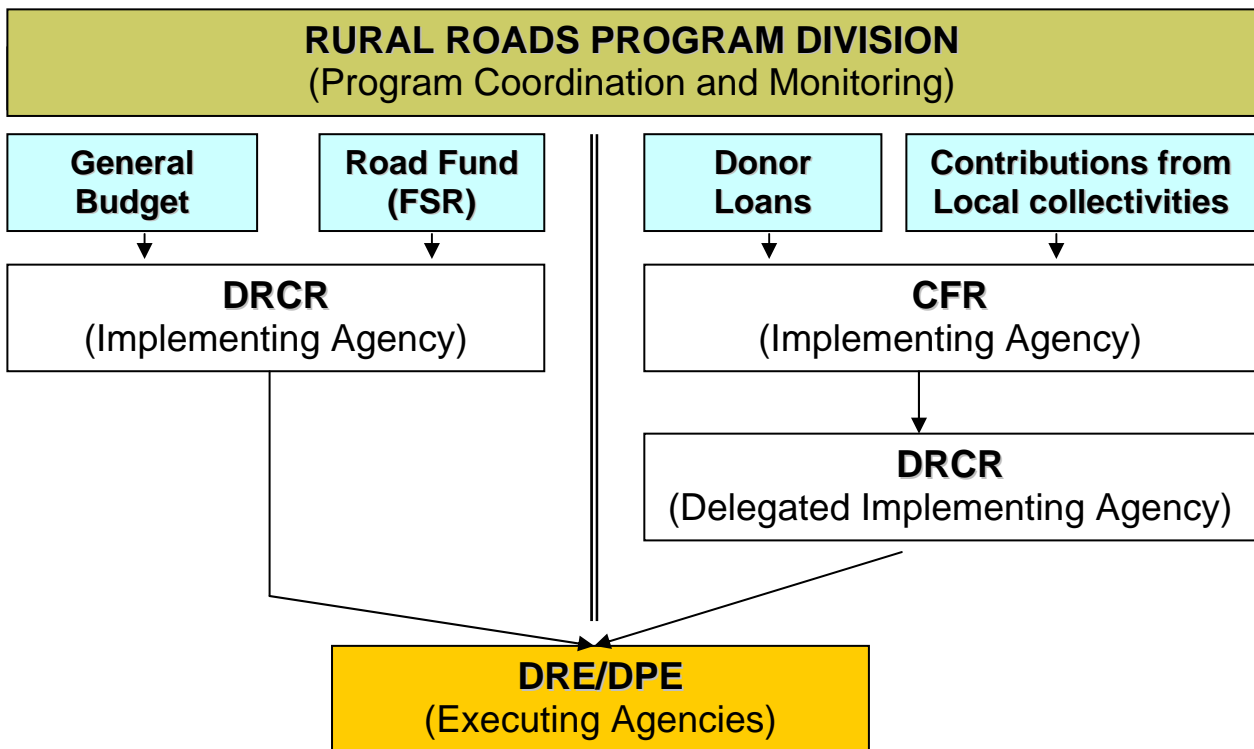
Furthermore, the DRCR can influence local collectivities in order to increase their capacity to manage local roads by:

- Launching a study to audit the local human and financial resources and to propose new kinds of organizations as other countries have deployed very successful best practices: new ways to raise funds the use of local tax, synergy between local collectivities by implementing regional centralized center for material and for technical assistance.
- Increasing the number of partnerships with local collectivities in order to act as a delegated implementation agent.
- Clarifying the scope of intervention of the DRCR to classified roads, and that non-classified belong to the responsibility of local collectivities.

Global view of rural roads:

In order to obtain a global view of all projects:

- The DRCR, with the help of its Provincial Directorates (DPE), carried out an inventory of the country's rural roads with a view to facilitate preparation of their priority rural roads programs.
- The DPEs will be responsible for generating information on all rural roads projects, including their implementation status, and for disseminating such information to government officials and service providers in an effort to facilitate the planning of infrastructure, services and investments.
- Solidification of the circuit through establishment of common Program management procedures and training
- Creation of a Rural Roads Program Division (RRPD) devoted to consolidation of the Program.



- Development of new Information tool for NPRR-2 management: Geographic Information system (MapInfo), Internet web based application to disseminate the information, project planning tools (MS project 2003).

UIPS Urgent and Integrated Program of Safety to improve road safety:

An inter-ministerial commission for road safety, reporting directly to the Prime Minister, was created to promote road safety plans and oversee their implementation. The DRCR is part of this commission. DRCR can implement by including the funding of the actions below in the NPRR-2 program:

- Enhance the infrastructure by eliminating of the most dangerous road sections (black spots) in the rural roads.
- Reinforce signalization of the rural roads

Liberalize the transport sector

The Ministry of Equipement and Transport has to encourage liberalizing the transport sector, that should significantly improve the provision of road transport services in villages and rural areas because small trucks, that are appropriate for the rural economy due to the small size of shipments and poor road condition, will no longer be constrained to own-account transport. Where roads are improved, better truck services with lower prices will be offered.

4. CONCLUSION

While continuing the development of the rural roads network, the second national program of rural roads will be distinguished for many improvements founded on the lessons drawn from the execution of the first program. The principal characteristics of this program are:

- The focus on accessibility criteria,

- A planning based on a participative method on the provincial level,
- The adoption of relevant technical, economic, social and environmental standards,
- A diversified financing concerning :
 - Creation of the Financing Road Agency to afford the necessary additional resources.
 - The contribution of provinces and the Local Collectivities.
- A particular focus is made on the preservation and the maintenance of the rural roads,
- Appropriated modalities of implementation and evaluation, strengthened by wide information about the progress of the execution and the program's results.