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CHALLENGES FOR THE SUSTAINABLE DEVELOPMENT OF ROAD SYSTEMS IN BANGLADESH

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ABSTRACT

Sustainable road development is an enormous challenge in the context of Bangladesh as its road system grows ever bigger and that already constructed road needs increasingly more funding for maintenance. This paper deals with the challenges Bangladesh is currently facing in sustainable road development along with measures taken to overcome them.

Significant volume of prioritized road network being completed, and role of road organizations is gradually shifting more towards maintenance to safeguard the investment in the road systems. But maintenance funding is in acute shortage. Local and external fund are being directed for maintenance. Besides, Road Maintenance Fund is being created for the purpose. Development fund is also in chronic scarcity and is being harnessed from local source and external aid agencies. Enabling environment has been created for private sector investment in the road sector. But present level of traffic does not qualify much Built Operate and Transfer (BOT) projects.

Besides, acute financial scarcity, other challenges are selection of right project, implementation following proper design and quality, institutional capacity building, achieving value for money, good governess, severe frequent flooding, National Policy Reform etc. Project Appraisal Frameworks (PAF) are being introduced which offers a simplified multi-criteria appraisal mechanism for Bangladesh, which addresses the poverty alleviation and social development needs besides the economic viability and ensure comparability of projects both within and across modes. Road Assets Management System (RAMS) using Highway Development and Management Tool (HDM-4) has proven to be effective tool in prioritizing the periodic maintenance programme and has helped executing agencies to opt for objective judgment.

E-Governance is gaining increasing usage in all departments. Introduction of Central Management Systems (CMS) based on Earned Value Management to control cost, physical progress and accountability of work by computerized systems is a landmark progress in the area. Unified procurement policy and standards for all departments have been introduced in according with internationally agreed norms for efficiency, transparency and accountability. Policy reforms are planned by formulating National Land Transport Policy (NLTP) and Integrated Multi-Modal Transport Policy (IMTP). Considerable sustainable progress in concerned areas have been achieved with Government commitments and participation of the development partners in response to strong movement towards better performance, increased efficiency, public participation and improved accountability.

1. INTRODUCTION

Bangladesh has an area of 147,000 sq.m. with a population of over 130 million making it one of the most densely populated in the world. Some 88% area is flat and 12% is hilly. It is also a flood prone area having 80% flood plain. Most of the country is on a delta formed by the deposition of sediment carried by the three large rivers which discharge from the Himalayas into the Bay of Bengal. There are over 200 small to medium large rivers which interrupt movement by land transport. The climate is tropical and humid with an annual average rainfall of between 2,200mm and 2,500 mm. About 80% of this rainfall occurs during a single monsoon season, usually lasting around four months. This can cause sudden and severe flooding in the many low-lying areas of the country, and often makes many rural areas inaccessible during the monsoon period.

When Bangladesh became independent in 1971, there were only 3,500 km of paved roads in the whole country. This figure is now 50,000 km – a notable achievement, which has contributed to both national strategic growth, and rural poverty reduction. Bangladesh's chief export is ready-made garments, and many of the raw materials for these are imported. The main port of Chittagong handles over 90% of the country's external trade, and the road connection between it and Dhaka, the capital and centre of the garment industry is the country's key economic corridor.

The national road network comprises 21,000 km, of which 83% is now paved. This network carries two-thirds of the nation's traffic[1]. Of this network 3,500 km is designated as National Highways – connecting the capital with divisional headquarters and sea and land ports, and these roads which are only 7% by length of the total paved network, carry one-third of all road traffic.

The national road network is administered by the Roads and Highways Department (RHD), under the Ministry of Communications. The challenges for sustainable development of the road system in Bangladesh is a fundamental matter for RHD over the next 20 years, and the department needs to gear up to respond to these challenges. The key issues to be faced during this period are:

- Resourcing the development and care of the road network
- Making the best use of existing resources
- Managing the network to respond to development and growth
- Using rational criteria for project selection and implementation
- Taking control and responsibility
- Involving stakeholders

[1] By vehicle-kms

2. PROBLEMS FACED

Partly due to poor accessibility, but more due political demand, there has been a lot of rural road construction by the national road administration. There are over 10,000 paved kilometers of so-called Zila (district) roads, where typically traffic levels are less than 500 vehicles per day. The care of these roads had placed a huge burden on the administration, and as a result of inadequate resources a large proportion of these roads now need to be reconstructed.

Road transport is the ever increasing dominant transport option for both passengers and freight. Between 1975 and 1997 the percentage of passenger-kilometers by road increased from 54% to 73%, while the share by rail declined from 30% to 13% (MOC, 1998)[2]. The corresponding figures for freight were 35% to 63% for roads and 28% to 7% for railways.

Roads dominated resource allocations in the transport sector, as illustrated by the Fifth Five Year Plan (1997-2002) in which the allocation of funds for the development of different modes of transport is as follows: roads - 63%, railways - 20%, inland water transport - 11%, and air transport - 6.%. Indeed, resources allocated to the road sector made it the third most important sector, behind health and education. However, this privileged position cannot be sustained. It is clear that the emphasis of both government and development partners will switch away from large-scale infrastructure projects towards to more focused poverty reduction programmes.

Through vehicle licence fees and other stationary vehicle costs, along with tolls[2] road users currently pay around Taka 4,000 million per year, equivalent to around $62million. However, the budget for road maintenance for the national roads is well in excess of this, and the real need for road maintenance is even higher. The fact that road users are under-contributing to the maintenance of the road network is compounded by the low cost of fuel. Diesel prices[3] are effectively subsidized by the state-owned petroleum corporation.

Traffic on the main roads is increasing at around 5% per year. Many of the National Highways, built as two-lane single carriageway roads, will be approaching capacity over the next 10 to 15 years, and there will be a need for significant widening and new roads to accommodate traffic demands.

RHD regularly undertakes road condition surveys on paved roads with data for 2005/2006 shows vast majority of roads are good or fair which require reasonable accurate estimates and funding of long-run routine and periodic maintenance. Following figure 1 shows the road conditions. Over 60% of national roads are in poor or very poor condition. This maintenance backlog is increasing annually.

The rural road administration (LGED)[4] consumes more resources than the national road administration, despite carrying only 7.5% of the nation's traffic. During financial year 2005-06 the development funds allocated from the national budget for RHD and LGED were US$ 286 million and US$ 438.43 million respectively.

[2] Mainly on large bridges
[3] Diesel is regulated at Taka 35 (US 51 cents) per litre, octane at Taka 58 (US 90 cents) per litre.
[4] Local Government Engineering Department

Overloading, by both trucks and buses, is acute in Bangladesh. Recent surveys indicate the equivalent standard axles of medium trucks (2-axle) on national highways is between 4 and 5. This could reduce the design life of these roads from 20 years to 5 years – a huge financial imposition.

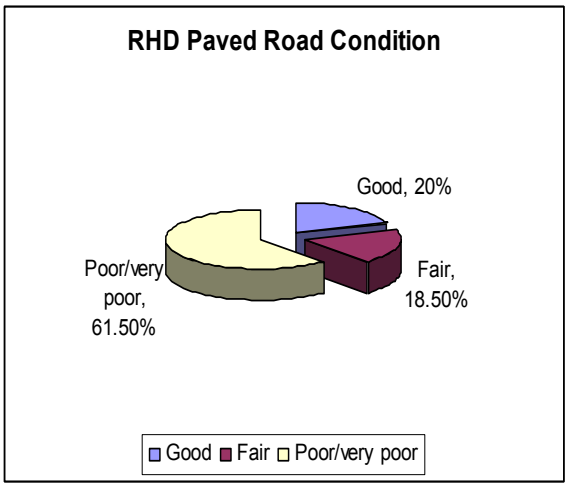

Figure 1 - Road Condition (Road Fund Office, 2006)

3. RESOURCING MAINTENANCE AND DEVELOPMENT

The biggest challenge for RHD, the Government, and indeed the country, is to find a sustainable way to finance the development, care and maintenance of the national road network.

Currently, donors are contributing to road maintenance through sector budget support and debt-swap arrangements. In addition, many donor loans contain a periodic maintenance component. In the long term, these financial arrangements are neither sustainable, nor acceptable to development partners.

The concept of sustainability must involve road users paying more, either directly or indirectly, towards road maintenance and development. The main tools available to the Government are:

- road and bridge tolls;
- vehicle licence fees
- mass-distance charges
- fuel levy

Potential collection of a fuel levy has been researched extensively and has been found to be perfectly possible and efficient in Bangladesh. However, the whole issue of fuel price rises is fraught with political sensitivity, and overcoming this through stakeholder awareness and sensitivity is part of the challenge.

In the meantime, tolls on roads and bridges are generally acceptable in Bangladesh. The revenue raised (Taka 1,500 million) per year at almost 30 locations is a relatively poor return and it is firmly believed that this revenue take can, and should, be significantly

increased. This also gives scope for a more rational tolling system[5]. This is being intensively researched at present.

The total allocation for national roads from Government (including development partners) has remained remarkably constant, at around Taka 23,000 million per year, for the last few years. The challenge is now to ensure that, within any given financial allocation, be it capital or revenue, there is sufficient funds for road maintenance. Maintenance must have the first call on resources, unlike the present, when it is development which always takes priority. Flexibility in budgeting will be a challenge for the Government. The challenge for the road administration will be to use any larger allocations to their full use in a transparent and accountable way.

The targets for sustainable maintenance as follows:

- By 2012 road users will be able to pay for the full costs of road maintenance in Bangladesh
- Government contributions towards road maintenance can decrease over the next six years
- By 2012 the Government will not need to contribute towards road maintenance
- Where this is an interim shortfall in resources, development partners can be asked to assist.

The attraction of private investment in the road sector is also a big challenge for Bangladesh. The time has come for Bangladesh to open up its road system for private investment and to consider this as a business like many other countries to arrange funds for the road sector and to ensure sustainability. The Board of Investment has setup an Infrastructure Development Unit to provide support to privately finance projects. A body in the name of Road Privatization Cell (RPC) with adequate responsibilities and facilities has been set up under the control of Chief Engineer, RHD. To provide policy guidelines and directives, supervise the performance of the Road Privatization Cell and approve the BOT projects, a Committee chaired by the Minister of Communications has been formed.

Guidelines for Private Investment in National Highways has been framed where project identification principles, legal framework, Government support, tax/fiscal concessions/other concessions, toll/fee, land handover procedures, project construction, termination of concession, procedures for applications and processing proposal, evaluation and award procedure etc are enumerated. In fact institutional and legal framework has been established.

There is considerable interest within Bangladesh in road sector private financing. But excepting some National Corridors current traffic levels are too low to pay even a small proportion of the revenue requirements of a commercially funded BOT project. Even then Government support can make BOT project attractive to investors. RHD has already identified some road and bridge projects as BOT and some investment proposal have been invited internationally through RHD website (www.rhd.gov.bd). The growth in traffic indicates that a number of potential BOT road projects could be viable within the next 6 to7 years.

Finally, within this challenge, the roads administration must move towards a more corporate environment to meet the challenges of being a service provider with a firm

[5] Both geographically, and across vehicle types

commercial base. The extent to which this requires new institutions or changes to existing ones is still being examined.

4. MAKING BEST USE OF RESOURCES

Under the Government's National Land Transport Policy (2004) a key initiative is to make better use of assets through, maintenance and protection.

The road administration must grasp this through improved maintenance techniques. Periodic maintenance is now a regular feature of the work of the administration, and the next challenge is routine maintenance, and the involvement of contractors in performance based agreements with RHD.

Traffic management must be improved, especially on our national highways, where indiscipline by drivers and road-side activities are preventing the road network from realizing its full capacity. We cannot afford to build our way out trouble and low-cost solutions to these problems are an immediate and pressing challenge.

Controlling overloading is also a challenge for sustainable road maintenance as it caused premature damage of road pavement. Studies (Axle Load Survey, 1998) have shown wide spread overloading of trucks on road, specially on National and Regional Roads. Trucks are mainly responsible for overloading and in a study country wise average ESA was found 4.62 in 1998(Axle Load Survey, 1998) but its magnitude is increasing as better roads are being built. The incidents of overloading increase on better roads (Axle Load Survey, 1998) posing challenges for sustainable maintenance of National and Regional Roads in Bangladesh. Overloading rapidly damages the road pavements specially after rainy season or during and just after flood which happens frequently in Bangladesh. The road agency may well have to increase its maintenance budget by up to one quarter to cope with the problem (Steering Committee Report on Axle Load Management, 99). Key organizations involved in the management of motorized transports are Bangladesh Road Transport Authority (BRTA), Police, and RHD. A high level Steering Committee (SC) has been formed to monitor, evaluation and take appropriate measure to control the overloading. However lack of law enforcement, general tendency of truck owners/driver not to abide by law, lack of equipment and monitoring have been worsening the situation.

The absence of regular maintenance and the short term work often employed in the face of budgetary shortages has resulted in a considerable latent burden under Bangladeshi road surfaces posing challenge for sustainable road maintenance. The ongoing requirement for maintenance is around double the current locally funded expenditures. Maintenance allocations for different road agencies are given in the Figure 2.

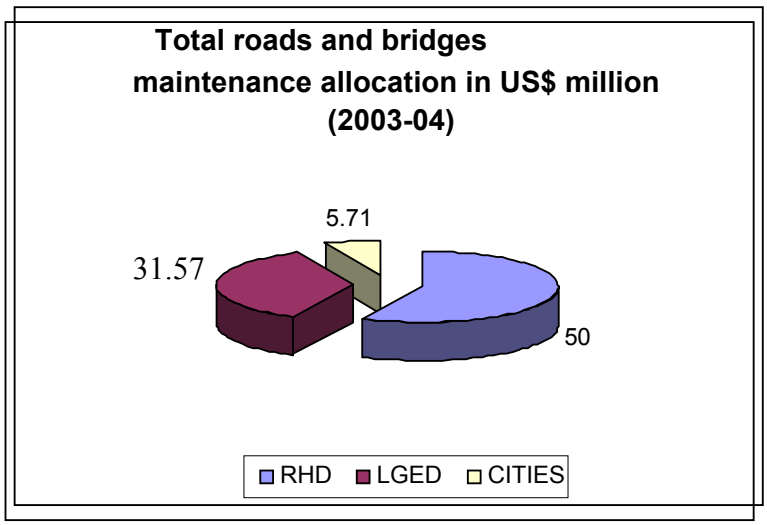

Figure 2-The Total Roads and Bridges Maintenance Allocation (2003/04)
Source: Bangladesh Maintenance Road Fund, May 2006

There was a significant increase in major periodic maintenance in 2004-05 provided by DFID (Sector Budget Support) and JBIC (dept swap arrangement). Excluding this externally finance expenditure and ferry costs, expenditure was reasonably constant at about US$ 50 million per year. The total estimated expenditure on maintenance of full network is US$ 200 million which is around US$ 64.28 million more than was spent in 2004-05 (Road Fund Office, 2006). However RHD expenditure includes US$ 54.28 million from International aid agencies. Without this assistance the total expenditure would only be 40% of the total requirement. Current backlog for the whole RHD road network is US$ 285 million (MOC, 2006-07). The DFID and JBIC external assistances are expected to continue in the coming years.

The above discussions show that maintenance is not adequate and it is hampering proper preservation of the assets. As a consequence road development may not be sustainable in the long run. For sustained local adequate fund flow road maintenance fund is being created.

The proper procedure of maintenance is also a challenge. Road maintenance in RHD is carried out by contractors excepting routine maintenance which is done departmentally. But LGED in addition to that also carry out rural road maintenance by an innovative and participatory way called "Labor Contracting Society" (LCS) in a sustainable way. The objectives of LCS are to directly involve the landless groups/destitute women, eliminate intermediaries, provide employment/income opportunities and ensure fair wage to the laborers through maintenance of their nearby roads. The LCS is defined as group of landless men and women labors who depend on manual labor as their main source of income and who do not operate more than 0.5 acres of land and are generally organized by Bangladesh Rural Development Board and Non-Government Organizations (NGOs). The LCS groups/member are involved in earth work, construction, pipe casting and culvert installation, HBB laying, tree plantation and maintenance of earth road, bridge/culvert etc.

5. MANAGING THE NETWORK TO RESPOND TO GROWTH

The economy of Bangladesh is designed to grow in a number of key industrial and agricultural sectors. The road network required careful planning to respond to this challenge, and ensure that resources are deployed so as to assist national development.

With the assistance of the Asian Development Bank, the administration has initiated a road masterplan for the next 20 years. This will be guiding panning and investment document for the road system. It will contain the full range of development and maintenance initiatives needed, along with capacity increases where warranted by forecast traffic demands, along with management and protection measures.

6. RATIONAL CRITERIA FOR PROJECT SELECTION

Proper project evaluation/appraisal is a challenge for sustainable road development as it is the essential investment project prioritization tool and even more crucial in case of limited resources. If under constrained budget the proper investment selection is not done development will hinder. Situation further worsens in Bangladesh where political priorities often govern especially in locally funded project. Projects are appraised by the concerned department and through line Ministry it goes to Planning Commission where according to the project cost Planning Minister or ECNEC (Executive Committee for National Economic Council) approve the project. Recently to expedite project approval process it is made time bound. Once concerned department sent a project for approval there is specific time within which line Ministry, Planning Commission has to take decision regarding the proposal. At present projects are evaluated using format known as Development Project Proposal (DPP). For Government of Bangladesh (GOB) projects, generally political wishes of the Government govern in the approval of the project. Benefit-Cost ratio/Internal Rate of Return (IRR)/Net Present Value (NPV) is not done and it is highlighted as service sector project. But new Project Appraisal Framework (PAF) is on the process of approval where more systematic details evaluation of all GOB and foreign aided projects will be done thereby hopefully be able to offset to certain extent political selection of GOB funded project.

To meet the challenges of sustainable road development a Project Appraisal Framework has been designed as a tool to allow consistent planning and prioritizing of transport sector projects in line with objectives of the national policies enumerated in Poverty Reduction Strategy (PRS), National Land Transport Policy (NLTP), and Integrated Multi-Modal Transport Policy (IMTP) etc. Reflecting the recent changes in appraisal techniques, the PAF offers a simplified multi-criteria appraisal mechanism for Bangladesh which addresses the poverty alleviation and social development needs besides the economic viability. Adoption of PAF in the transport sector will help ensure comparability of projects both within and across modes. PAF will be applicable to both new construction and maintenance projects for surface transport modes. The assessment will be based on set of indicators. Studies like Initial Social Assessment, Social Impact Assessment, Initial Environmental Examination, Environmental Impact Assessment and any other study have also to be done.

The PAF has adopted two sets of indicators-one to ensure equity and the other for efficiency. Given different quantitative outputs of each indicator they are applied to rank each project with a view to help the decision-making process on a common basis. Each

indicator is given a score in a scale of 0 to 10, with 10 reflecting the best case and 0 the worst.

Equity and efficiency are two broad objectives of any public sector intervention toward developments. In case of the PAF the social and economic development (includes economic condition of project area, gender issues, resettlement etc.) indicators take care of equity whereas transport efficiency (EIRR/FIRR), funding, multimodal integration and safety are considered as efficiency indicators.

Once the Project Appraisal Report is finalized and the Appraisal summary Table completed the score can be interpreted in line with the following Table 1.

Table 1 - Summary results and meaning

Score Ranges	Meaning
50 and above	Very Good
40-50	Fair
35-40	Poor
Below 35	Very Poor

The selection of projects will not depend on the score of any project itself. Rather how that particular project scores compared to other projects and how much resource is available to fund projects should also be the guiding factors. Priority of projects will depend on the relative scores of the projects. A project may be funded if the following conditions are fulfilled.

- The project scores better than all rejected projects
- Adequate fund is available so that the project can be finished on time
- The project is at least fair as per the ranges provided in the preceding table

7. TAKING CONTROL AND RESPONSIBILITY

For too long Bangladesh has tended to act as a passive recipient of donor aid, and to some extent, donor priorities. A key challenge for the country is take charge and responsibility for its actions and resource deployment in the road sector.

In the recent past major ever more emphasis has been given at the national policy reform for sustainable road development some of which are as follows. Challenges lie ahead is to implement of those policies on ground.

National Land Transport Policy (NLTP)

A precondition for development is good infrastructure. The NLTP has been formulated in the light of the Government pledge to establish a transport system which is a safe, cheap, modern, technologically dependable, environment friendly and acceptable in the light of globalization. The NLTP has been prepared for a long term vision of at least 30 years to make the role of transport in economic activities more significant and underpin continued economic and social development. In this country, transport opportunities will be optimized through a multi-modal transport system and there is an appropriated reflection of the above-mentioned matters in this policy.

Integrated Multi-Modal Transport Policy (IMTP)

It is to develop transport sector combing road transport with railways, civil aviation and inland Water Transport (IWT). Its visions for providing safe, dependable, effective, efficient and fully integrated transport operations and infrastructure which will best meet the needs of freight and passengers by improving levels of service and minimize cost in a manner which supports government strategies for economic and social development whilst being environmentally and economically sustainable. In addition, it will make the transport system efficient in a regional context to allow Bangladesh to export its unique geographical position.

Road construction especially for small Government funded projects following proper design and quality is a challenge for sustainable road development in Bangladesh. Locally funded projects being smaller in sizes equipment intensive method of works could not afforded resulting in lower quality road. But foreign aided roads projects are properly designed and construction quality is good. There are manuals for road design, quality control guidelines, quality assurance manual etc., but their proper application in the locally funded smaller projects is very difficult.

To achieve value for money there is no alternative to efficient, effective and transparent unified procurement policy and standard and it posed as challenge for sustainable development since long. Bangladesh constitution has no direct provision on public procurement nor does any nationally applicable procurement law exist previously to regulate approximately US$3 billion per year of government procurement. Previously each department and public sector entity had its individual manuals and procedures. Inadequate procurement expertise, complex bureaucratic decision-making processes, lack of transparency, allegations of corruption in the procurement of goods, works and services have contributed considerably to slow down project implementation. Hence the need for improved governance in public sector procurement. It was felt that in order to achieve this, a permanent unit should be established to provide technical advice to all agencies of the government including ministries. The CPTU of the IMED (Implementation, Monitoring and Evaluation Department under Ministry of Planning) is that permanent unit.

Objectives for the reform in public procurement was contribute to improved performance in public procurement through introduction of measures to make the system compliant with internationally agreed norms for efficiency, transparency and accountability, procurement management capacity building & through creation of national procurement professionals.

The CPTU will be responsible for carrying out the Public Procurement Reform Project (PPRP) following the recommendations of the Country Procurement Assessment Report (CPAR). Within the Government, the CPTU is responsible for policy formulation, co-ordination, monitoring and improvement of the public procurement in Bangladesh. For all department involved in public procurement unified Standard format and procedure has been implemented which includes documents like Standard Tender Documents, Standard Request for Quotations, Standard Prequalification Documents etc.

Proper decentralization is very important for effective and efficient running of a department. The country is administratively divided into 64 districts and 464 Upzilas. RHD and LGED have procuring entity and work executing offices named Divisions up to District level and LGED has such offices in the name of Upzila Engineer up to Upzila level. Considerable financial power is vested upon those officers to expedite the implementation of programmed works. In RHD above Divisions there are Circles headed by Superintending

Engineer and Zone office headed by Additional Chief Engineer where increasingly higher financial powers have been delegated. Financial powers have been delegated among Cabinet Committee of General Purchase (CCGP) -the highest body for project approval, concerned Minister and Chief Engineer. Delegation of these powers is time to time revised by Ministry of Finance as required. Besides financial power administrative powers have also been delegated to those levels.

To meet the challenges of sustainable road development organization and management plan of RHD have changed considerably over last decades to make it efficient, effective, modern and sustainable department with system in place to change further in future as required. The management plan shown below in Figure 3 shows the hierarchy of management information required to define the organization and the procedures, which are required for effective operations. The NLTP is seen to be the guiding document for all issues concerning land transport. These activities come under the auspices of either the Ministry of Communications or the Ministry of Local Government, Rural Development and Cooperatives. The Ministry of Communications Policy is a sub-set of the NLTP covering roads and highways (mainly through RHD).

The RHD Strategy is designed to satisfy the requirements of the Ministry of Communications Policy in respect of those activities. To support this, a separate strategy has been prepared for each of the Wings and Zones within the Department. Two types of documents have been defined to assist in the achievement of the activities within the Wing/Zone strategies. The two document types are Circle Operational Plans and Circle Management Manuals. The Circle Operational Plans contain details of the Objectives, Outputs and Activities of each Circle within the Wings/Zones together with details of the Personnel and other Resources required. Each Circle Operational Plan is supported by an Operational Budget which is essential for the successful implementation of the Plan. The Management Manuals contain operational procedures and regulations and job descriptions for the various grades of personnel and for specific posts. The sum total of these documents within RHD form the “RHD Management Plan”.

The RHD Management Plan is not a static document, it will be changed as the Department changes and portions of the document, especially the Circle Operational Plans and the Management Manuals, will be regularly updated. These documents indicate the extent and nature of the work to be undertaken by each Circle and provide justification behind the number of personnel, physical resources and budgets required if the reorganized RHD is to operate effectively.

E-Governance is vital for efficient, effective and transparent operation of any organization by meeting the national and global challenges. According to National ICT (Information Communications Technology) Policy 2002 Ministry of Communication has finalized to preparation of Ministry's ICT policy and ICT Cell. Ministry has taken steps to prepare action plan, training and integrated use of ICT. All departments under the Ministry has hosted website with necessary documents, information, data, major ongoing projects, active tenders, etc. Tender has to be published in the RHD website and tender value more than US$ 0.14 million is to be published in the (Central Procurement Technical Unit) CPTU website. RHD has been at the forefront in Bangladesh to introduce E-governance. RHD had officially launched RHD Website in July 2003. The Website contains a wide variety of information on technical and managerial issues. This includes roads and bridges data, personal data, financial project information, different manuals, and standard test procedures, design standards for roads and bridges as well as management plans for each area.

RHD has introduced Central Management System (CMS) which is computerized management tool that addresses like transparency, physical and financial progress etc by utilizing the system itself as the essential means of carrying out day to day business. It consists of Contract Module and Financial Module. The major features of the Field Package is the facility for management to develop and monitor Contracts thereby giving managers a quick and easy view of the performance of the contracts for which they are responsible. Progress is monitored using Earned Value Analysis (EVA). When each contract is monitored and managed it is possible via the linkages in the contracts Module to view progress at any of a Division, Circle, or Zone Office, or the entire budget heads, view the progress of a specific project and look at the performance of Contractors, both in a Zone or throughout the whole RHD network. Both physical and cost control of projects can be managed by EVA. Besides, RHD's Monitoring and Evaluation Divisions have computerized data base and reporting system through which cost and progress of project are managed. Since the CMS system is used to provide estimates, contract documents and payment certificates and since there is a direct link between the physical measurement and the expenditure recorded in the cash book, RHD management can be confident that figures and charts from the system record what is actually happening in the field.

8. INVOLVING STAKEHODLERS

As an emerging democracy it is no surprise that Bangladesh has a poor record on public and community participation and consultation. Pressure tends to be directed through political parties which deflects the ability of technical solutions to solve problems.

The challenge for the roads administration will be to reach out to stakeholders, both nationally and locally and to understand their views and concerns. At the same time, awareness building will be needed to ensure that stakeholders participate in full knowledge of the opportunities and constraints acting on the roads administration.

9. CONCLUSION

National and Regional Highways through which bulk of main commercial freight and passengers movement are still in developing stage and completed roads are at present in reasonably good to fair condition. Due to scarcity of road maintenance resources challenges lie ahead is to preservation of this assets in a sustainable manner. NLTP, IMTP and Road Master Plan have emphasized on efficient road maintenance. Government has realized its importance and to this end establishment of Road Maintenance Fund is at final stage of approval to solve the maintenance fund problem in sustainable way. PPP needs to be introduced in Bangladesh. Zila road connecting lowest Government administrative unit to the country's main road system requires huge development investment. Foreign aid is being available to develop part of those roads. Considerable policy reform in the national levels has been done specially by formulation of NLTP, IMTP and Reform in procurement to attain value for money along with capacity building of the road related organization like RHD, LGED, Planning Commission, and Ministry of Communication. Another challenge which posing great that is concept, culture of quality and properly designed road construction especially in case of Government funded small speciously segregated works which in aggregate is significant in cost. So far policy, organizational capacity building, guiding manual and standards all are in place satisfactorily but needs their full utilization on the ground in all works. Increasingly political interference in the area is also a serious problem hopefully will be reduced in future after implementation of UAF. Use of RAMS by

HDM-4 model already has considerably diminished political interferences in selection of periodic maintenance work. Overloading need to be addressed properly for long-term sustainability.

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