

Expansion of Labour-Based Methods in Maintenance of Public Roads: Options for Promotion of Citizen Participation in Uganda



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List of Acronyms

ADB	African Development Bank
ARMP	Annual Road Maintenance Programmes
CARs	Community Access Roads
CLP	Community-Led Procurement
DAs	Designated Agencies
DPs	Development Partners
DRC	District Roads Committee
DUCAR	District, Urban and Community Access Roads
EPRC	Economic Policy Research Centre
GOU	Government of Uganda
GTZ	German Technical Co-operation
ILO	International Labour Organization
KCCA	Kampala Capital City Authority
LAPPCOM	Labour-based Policy Promotion Committee
LoGs	Local Governments
MoFPED	Ministry of Finance Planning and Economic Development
MoLG	Ministry of Local Government
MoWT	Ministry of Works and Transport
OAG	Office of the Auditor General
OECD	The Organisation for Economic Co-operation and Development
PIARC	Permanent International Association of Road Congresses
RDSP	Re-integration of Demobilized Soldiers Programme
SIDA	Swedish International Development Cooperation Agency
SSA	Sub-Saharan Africa
SWRARP	South-West Region Agricultural Rehabilitation Project
UNDP	United Nations Development Programme
UNRA	Uganda National Roads Authority
URF	Uganda Road Fund
UTRP	Uganda Transport Rehabilitation Project
WB	World Bank

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Executive Summary

In recent years, the need to enhance public participation in public administration, and the efficacy of alternative mechanisms in achieving this goal, have been central themes in public literature. However, the benefits of public participation are often taken for granted, and partly for this reason the underlying rationale for greater public participation is sometimes poorly articulated, making it more difficult to determine how to pursue it effectively. Labour based maintenance of public roads provides an opportunity for participation of citizens in service delivery while providing employment and in some instances reducing the unit cost of maintenance.

There is also a growing recognition on the part of administrators that decision making without public participation is ineffective. Therefore, there is need to decide what citizen involvement intends to gain; and which technique will best provide the information for the decision making process.

Uganda has taken a number of commendable steps with initiatives underway to improve the effectiveness and productivity of citizen participation in sectors. Moreover, the tools for participatory procedures are gradually being established and are beginning to prove important and valuable in the management of public institutions. For example, there have been some developments to increase transparency and consultation in the budget process. The sector working groups that prepare budget framework papers bring together central and line ministries, civil society and development partners. This is precarious since citizens' feedback on government expenditure governance, implementation of public works and the delivery of public programmes and services is vital in improving performance.

Thus, there is need for a policy that systematically enables communities, through their own organizations, to participate fully and effectively in the organization, co-ordination, and management at every stage of the project cycle. As a complementary strategy, this paper recommends that government needs to strengthen beneficiary participation by adopting initiatives that allow citizens to be better informed about projects and available public resources to ensure ownership, accountability, transparency, efficiency and effectiveness. Whereas, examples from different countries have shown that Labour-based techniques can be successfully applied to most maintenance activities on the entire road network, Labour-based methods in Uganda are confined to maintenance of Community and Access Roads (URF 2013; Taylor and Bekabye 1999; Stock and Veen 1996). There is need of an appropriate mix of Labour and light machinery, under the Labour-Based Methods, to substitute machines in

Uganda's infrastructure production and maintenance. Transport Maintenance projects must be based on a clear understanding of the local situation; should incorporate the expertise, knowledge and perception of the local community and must substantially involve them in projects' implementation. The Paper makes a plea for more attention to nurture the concept of labour-based methods and improve it by rationalizing the process and evolving structures to facilitate its application in the road sector.

I. Introduction

The concept of citizens' participation in government decision making is fundamental to the functioning of a democratic system of governance. Even though officials are elected to represent citizens, they need to inform, be informed and interact with citizens (Kumar 2002). A central argument is that traditional government perceptions on citizen consultation must be reconsidered to include greater opportunities for informed community participation in planning and decision making processes. The notable five objectives of citizen participation are; information exchange, education, support building, supplemental decision making, and representational input (Seltzer and Mahmoudi 2012).

While citizen participation has become an element in many planning efforts, planners and citizens often assess participatory approaches as being unsatisfactory. The contention is that not enough attention is given to the design of participatory programs. Consequently, failure to match objectives to techniques happens (Devas and Grant 2003). Responding to donor pressure, governments are often urged to adopt participatory approaches in their ministries as a means of influencing policy, and as a form of planning at multiple levels (Holland et al., 1998). As institutions become more inclusive through promotion of participation, the experiences of intended beneficiaries become a critical component of not only assessing the performance of government but also for the delivery of appropriate and quality services (PME 2013:2).

Although there is theoretical and practical recognition that the public is more involved in public decisions (MoLG 2014), the Government of Uganda needs to find better ways to engender citizen participation. This briefing paper looks at how government can improve citizen participation in the road sector through countrywide application of Labour-based methods in road maintenance programs. Labour-based methods help grassroots people organise themselves and negotiate for a greater share and more control over national infrastructure investment resources. Labour-based methods promotion initiatives in Uganda have also presented the use of labour-based methods as the best option when compared with equipment-based methods, primarily to provide the sound infrastructure that the country needs (Taylor and Bekabye 1999). Moreover, for transport projects to have a positive impact on poverty reduction, their design must be based on a clear understanding of the local situation; should incorporate the expertise, knowledge and perception of the local community and must substantially involve them in projects' implementation (Taylor and Bekabye 1999). Therefore, by involving communities in road maintenance activities, Ministry of Works and Transport (MoWT) can access local knowledge of the roads and thereby improve road maintenance services. Similarly, local

communities can appreciate better issues of road maintenance and the role of the MoWT in the roads sector. Increasing the knowledge about roads for these two stakeholders has potential to improve the maintenance of the road network. Thus, it is necessary to support the uptake of systematic ways that bring the experiences of citizens into governance of the roads sector.

However, empirical evidence has shown that despite its benefits, Labour based infrastructure programmes “are not growing, and at least not at the pace they deserve” (ILO 1999:16). Whereas, examples from different countries have shown that labour-based techniques can be successfully applied to most maintenance activities on the entire road network, labour-based methods in Uganda are confined to maintenance of Community and Access Roads (URF 2013; Taylor and Bekabye 1999; Stock and Veen 1996).

Within the above setting, this briefing paper makes a strong case for a wider application of labour-based methods as a technique to promote citizen participation. It provides information on how widespread labour-based methods have the potential to include a representative range of citizens in implementation of road works, which eventually improves citizens’ decision making power regarding their transport needs and priorities. The paper also identifies key reforms that can facilitate a sustainable expansion of the use of labour-based methods beyond the pilot rural maintenance projects to where the methods are currently confined.

This paper establishes the purpose for public participation in public expenditure governance in the road sector and discusses its implications for decision making. It then draws on the rationale for using local labour not only to develop strong economies and reduce unemployment but also as a citizen participation-generating tool. It considers how labour-based methods can better be institutionalized in not only small-scale rural maintenance projects but also major infrastructure programmes in the road sector.

2. Defining Participation in Road Sector

The need to involve users in planning, prioritizing, implementing and maintaining assets and services has become a priority in capturing additional resources and creating ownership. Participation provides opportunities for capacity building and empowerment.

Box 1: How Participation is currently framed

1. **Conventional Participation:** Administrators are territorial and parochial; they resist sharing information and rely on their technical and professional expertise to justify their role in administrative processes. Citizen participation is more symbolic than real (Arnstein, 1969). The power that citizens yield is aimed at blocking or redirecting administrative efforts rather than working as partners to define the issues, establish the parameters, develop methods of investigation, and select techniques for addressing problem
2. **Authentic Participation:** The public is part of the deliberation process from issue framing to decision making (Roberts, 1997). As a citizen indicated, “From the very beginning people need to be involved.” An administrator told us, “If you go to the community with a totally preset agenda that doesn’t work. Bringing people into the process too late does not work”

Source: (King et al 1998)

Greater emphasis has recently been given to “authentic participation” in development strategies. The focus has highlighted the fact that development programmes are unlikely to succeed if the intended beneficiaries are not involved in the entire process (King et al 1998). This entails involvement of citizens throughout the process from identification to operation, maintenance and evaluation. For this reason the policy briefing paper will focus on citizen participation in maintenance of not only the CARs but all public roads in Uganda. For avoidance of doubt, in this paper, District, Urban and Community Access Roads (DUCAR) will be termed as public roads.

3. Road Maintenance

Road maintenance means preserving and keeping road structures as near as possible in their original state (Burnigham and Stankveich 2005). It consists of correcting deficiencies that have developed as a result of age or use, and taking steps to prevent the development of other deficiencies (World Bank 1988). It also comprises the activities to keep pavement, shoulders, slopes, drainage facilities and all the structure and property within the road margins in good condition (PIARC, 1994). Road maintenance is vital in order to prolong the life span of roads and is an essential follow-up action after road infrastructure improvement

investment.

Due to lack of “planned maintenance” initiatives, the rate of deterioration of road network in developing countries is faster than the rate of construction (Ahmed, 2011). In Africa, nearly a third of the \$150 billion invested in roads is eroded due to lack of maintenance (Burnigham and Stankveich 2005). Therefore, a well-planned road infrastructure maintenance program is necessary to minimize further investment in the roads that deteriorate. Accordingly, empirical studies have shown that labour-based methods and less use of heavy equipment are considered as the best option for reconstruction and maintenance of infrastructure (Taylor and Bekabye 1999).

4. Ugandan Context: Situation Analysis of Road Maintenance

The Uganda Road Fund (URF) has the main objective of financing routine and periodic maintenance of public roads in Uganda from mainly reserved road user charges. The Fund has a duty to finance the implementation of the Annual Road Maintenance Programmes (ARMP) that are carried out by the Uganda National Roads Authority (UNRA), Kampala Capital City Authority (KCCA) and the other designated agencies responsible for District, Urban and Community Access Roads. Road maintenance in Uganda is undertaken through direct labour (force account) [equipment-intensive operations at the district level]. Routine road maintenance in Uganda usually involves keeping roads clear of debris, pothole filling and clearing roadside drains. Periodic maintenance is done once in a while and it involves surface reshaping by light grading, re-gravelling, minor culvert and bridge repairs and replacement. In order to eliminate the maintenance backlog, Government increased its funding to road maintenance. During the F/Y 2009/10 the Works and Transport sector received Shs.1, 214.8bn. Out of this figure, 14% of the funding to UNRA was for road maintenance (MoFED 2009).

This financing intended to:

- Ensure the maintenance of the rural feeder road network in good condition;
- Develop capacities for the local construction industry;
- Build capacity of district and urban LoGs to plan, finance and supervise works on their road networks; and
- Promote labour intensive works, especially involving women, to improve their livelihoods.

4.1. Status of the road maintenance in Uganda

Despite the allocation of the biggest part of the national budget to the Transport Sector, the condition of roads remains un-satisfactory.

Box 2: Findings from different studies on road maintenance in Uganda

A study done by EPRC: showed that although equipment provided by the government reached the district, a closer scrutiny of the available equipment reveals that most of the important equipment is obsolete and is in a non-functional state or in dire need of repair or grounded. While the government regional workshops for maintenance and repair of the machines are still operational, it takes a longer time to have the machines taken there to get them repaired. For instance, it is several years since the wheel loader for Soroti District was taken for repair. This, to a great extent, has paralysed district works at the lower levels. Further discussions with the Acting District Engineers revealed that once the machines were taken for repair, it was equally important not to consider them during the planning of activities. The cost of transporting the equipment to the central government mechanical workshop is too prohibitive (pg. 29). The working condition of the road equipment, in addition to its obsolete nature, was sighted as one of the major constraints to infrastructure development in the local governments. Grounded machinery constrains the entire works department of Pallisa and Soroti districts. Discussions with the acting district engineers revealed a major challenge in the repair of this equipment and machinery which is attributed to limited funding. Furthermore, the cost of transporting the machinery to Bugembe is so high leaving the district with no option but to ground some of its machinery. According to the acting engineers, when spare parts are procured and mechanics are requested to come to the district to carry out repairs, they are not only slow to respond but also costly in terms of meeting their allowances (See Magidu et al 2010)

A study done by OAG on Management of Road Maintenance by UNRA in 2009 revealed lack of grading or mowing of grass on the edge of the roadway at various locations. It was observed that grass had grown beyond tolerable height to the extent of diverting storm water onto the carriage-way, destroying the shoulders and part of the carriage-way. This scenario was very prominent on the Ishaka-Katunguru road around Rutoto hill, at Igorora town board, 17km on Ibanda - Mbarara road and the 18 km stretch of Mbale–Sironko road. Similarly, the inspection on gravel roads revealed grass that was growing and narrowing the carriageway and obstructing visibility, making the roads prone to accidents. A case in point is Kamuli-Namasagali road.

The study also argues that the major reasons for inadequate maintenance of grass on the carriage and shoulders under routine and periodic road maintenance are: inadequate supervision human resource in form of foremen and road overseers; late remittance of maintenance funds to station offices, which delays maintenance works; failure to observe local weather conditions that affect the road maintenance pattern; Inadequate road maintenance equipment. The adoption of labour-based approach could be a panacea to this protracted problem.(See OAG 2009)

Accordingly, the absorption of funds by DAs was rated as poor showing that

the problems of rural road maintenance are not uniquely related to financing (OAG 2012; URF 2013). Studies show that institutional factors relating to the lack of clear responsibility at different decentralized levels for maintenance planning, budgeting and implementation also explains the poor condition of the roads in Uganda (OAG 2012; URF 2013). Furthermore, there is over reliance on heavy machinery which is usually manned by personnel who are not capable of using it or carrying out repairs whenever the machines break down. This explains the non-functional state of most of the equipment at the districts (Magidu et al 2010). This observation is consistent with the view that there is an obligation to investigate the possibilities of utilizing more labor-intensive methods in maintenance of public roads to address the challenges associated with equipment- based methods.

5. Labour-Based Approach in Road Maintenance

Operationally, 'labor-based methods' refers to using labour and light equipment as the predominant mode of production (Stock and Veen 1996). The concept is based on the principle of using manual labor to complete tasks otherwise done by the machine. In the 1970s, ILO and the World Bank introduced labor-based methods in SSA countries on a pilot basis to assess technical and economic feasibility of the methods in a particular country. These studies concluded that "labor-intensive methods are technically feasible for a wide range of construction activities and can generally produce the same quality of product as equipment-intensive methods"(Construction Industry Development Board 2005). Noteworthy, labour-based techniques do not imply the complete elimination of machinery but rather a labour/equipment mix that gives priority to labour (Tajgman and Veen 1998)

5.1. Arguments for expanding labour-based methods in maintenance of public roads

In order to transform the poor condition of public roads in Africa, it has become imperative to adopt an approach that would not only allow for road maintenance on a continuous basis but also affordable within certain scope of maintenance schedules. Moreover, for transport projects to have a positive impact on poverty reduction there is need for policy arrangements to have stakeholders more involved in issues related to resource generation, allocation and prioritization of road investments (Kumar 2002). This briefing paper advocates for expansion of labour-based methods as the preeminent option for achieving this. These methods not only produce gravel roads of quality equal to roads made by equipment-based methods, but can also help organize workers to negotiate more

substantial participation in the national development process (Tajzman and Veen 1998). Application of such methods can halt road network deterioration and ensure that financial, material and human investments are made in a manner which maintains the quality and value of the assets and also improves the road network in relation to the demands and priorities of the users. Roads built and maintained by labour-based approach are more durable because of greater attention to detail during maintenance (Republic of Mozambique/ UNDP/SIDA, 2002).

The preference of this approach is also based on the fact that labour-based methods have a significantly higher employment creation potential when compared with equipment-based methods. They generate about 2.5-4.0 times as much employment of unskilled labourers as equipment-based methods (Taylor and Bekabye 1999)

Also, the use of labour-based approach becomes viable because most local government councils do not have the financial muscle and the required personnel to embark on equipment (machine) based approaches. The continuous use of heavy machines for the construction and maintenance of public roads has been found to have many challenges (Magidu et al 2010). These include but are not limited to fuel shortage, delays in procurement for both equipment and spare parts, inappropriate type of equipment, lack of understanding of equipment used and poorly trained and ill-motivated operators (URF 2013).

Despite its potential for involvement in many areas of development, labour-based pilots in Africa collapsed soon after the ILO and WB pilot ended or have remained primarily in the rural roads sector (ILO/GOU 1999; Stock and Veen 1999). Most countries have been accused of paying political lip-service to the expansion of labour-based methods rather than nurturing the concept to its full potential (ILO 1999). Unfortunately, even in countries where labour is abundant and capital is scarce, contractors are reluctant to adopt labour-based methods (Taylor and Bekabye 1999). Most labour-based activities remain project oriented rather than being part of national infrastructure programmes.

In Uganda, the use of equipment-based methods in road maintenance is still considerably high; 47% of the road maintenance done in FY 2011/2012 was carried out by equipment-based methods (URF 2013). This applies even to donor supported programmes albeit the fact that the same donors were advocating for labour-based methods. Taylor and Bekabye (1999) found that majority of donor supported road projects (six out of nine) used equipment-based methods.

6. Community-Led Procurement: An alternative policy option to improve citizen participation in the road sector

Community-Led Procurement (CLP) can be defined as an approach where the responsibility for managing financial resources and contracting service providers is vested in community organizations (Kalesh et al 2009). This gives locally elected community groups control of programme or project resources from local government and/or donors to acquire products, contractors and services. It involves the creation of community based organizations (CBOs) for design, implementation and management of local development works (Uriona 2001).

In this backdrop, CLP enables local communities to implement and control the procurement process through their own organizations often resulting in more openness and accountability, ownership, reduced corruption and wastage, better value for money, increased use of local workers/contractors and better quality works and services. CLP also helps citizens to be better informed about available public resources and projects and to manage their development in accordance with their shared vision.

The community is usually represented by some form of community-based organization or local project committee. Therefore, it is not the “community” per se that enters into a contract with the funding agency, but the group representing that community (Kalesh et al 2009).

6.1. Benefits of CLP

- Promotes community dialogue and consensus building through information-gathering and collective financial management.
- Strengthens citizen voice and community empowerment.
- Educates the community on available budgets and establishes realistic expectations about budgetary expenditures.
- Builds the technical capacity of both local communities and local government officials in procurement practices.
- Results in greater transparency and accountability in procurement practices.
- If successfully implemented, helps to curb corruption and waste, save money and generate local employment and asset creation

6.2. Challenges

Even though the benefits of CLP are now widely recognized, it may not work efficiently and effectively in Uganda because it is a new concept and initiative. Local governments lack structures or policies in place to accommodate such

initiatives. Moreover, governments may also be doubtful of the capacity of local communities to handle and sustain the process. Exposing government representatives to successful CLP initiatives, or involving them at different stages throughout the process, can help to overcome these challenges.

7. Reforms to facilitate the expansion of Labour-based Methods in Road Maintenance

Given the importance of labor-based methods, several key principles and reforms have been suggested to guide their design, implementation and expansion in road works. These include but are not limited to:

Generating government commitment to the labor-based technology: Broad government policies have the inherent ability to influence the expansion of labour-based methods in road works. However, according to ILO's review of the practice of Labour-based methods, most countries are still confining this approach to small-scale maintenance of feeder roads (ILO, 1999). Therefore, there is need for more labour-based policy promotion initiatives that do not merely present the application of the approach but give evidence based arguments that support its economic and social benefits. For example, various statistics indicate a cost advantage in favor of labour-based methods whose application was found on average to be 18% cheaper than equipment-based methods for full rehabilitation (Stock 1996; Taylor and Bekabye 1999). Such facts help to quantify the impact of introducing and expanding labor based methods and eventually generate government commitment to the policy (See appendix 1).

Supportive policy framework: There is need for governments and donors to make deliberate policy choices that support the use of labour-based approaches on infrastructure projects. Thus, macroeconomic, sectoral and cross-cutting policies should complement each other to ensure that the policy framework is supportive of labour-based methods' contribution to employment creation and pro-poor growth.

Altering labour laws to make them conducive to labour-based methods: In relation to a supportive policy framework, governments need to review labour laws in order to develop an enabling environment in which labour-based methods can operate. This is because these laws adversely affect the cost of labour relative to equipment, making labour-based methods less viable. Examples of these laws

include: the minimum wage that reflects the market wage, regulations on hiring and firing, and legislation on pegging wage rates to productivity.

Providing training so that quality can be ensured: Labour-based methods, when employed haphazardly, will not be competitive with equipment-based methods (Stock 1999). Accordingly, if institution and capacity building are neglected, and the working environment is not modified to allow the effective use of the new methods, the results will inevitably be inferior. This leads to failure in the longer term. Therefore, capacity building has to be conducted across all sectors (e.g., private sector, community groups, government and non-governmental organisations) and at national and subnational levels (OECD 2012).

Selecting a delivery mechanism that is suitable for the country: Before adopting a labour-based program, program designers need to compare the various delivery mechanism models (see Box 3) for initiating labour-based programs. They also need to understand each model's relative strengths in order to choose the most suitable model or succession of models for a particular country, given the characteristics of its road sector.

Box 3: World Bank's Six Models for initiating and Expanding Labour Based Programs

- i. **The force account model** ('in house' workforce) whereby a government body hires labour directly (either as individual workers or as worker teams) and provides the necessary supervision, administration and management required to execute the works.
- ii. **The conventional model** whereby a conventional contractor hires labour directly and provides the supervision, administration and management required to execute the works.
- iii. **The sub-contracting model** whereby a large contractor or firm sub-contracts the portions of the projects that are labour-based to small contractors and assumes overall responsibility for the supervision, administration and management required to execute the works.
- iv. **The government-run model** whereby the responsibility for all aspects of contractor development, including small contractor administration and payment, and the overall responsibility for the supervision, administration and management required to execute the works, lies with a government agency.
- v. **The agency model** whereby the responsibility for all aspects of contractor development including small contractor administration and payment and the overall responsibility for the supervision, administration and management required to execute the works, lies with an independent non-profit management agency or with a for-profit consulting firm.
- vi. **The development team model** whereby the responsibility for all aspects of contractor development and the management of the works is divided amongst the Client Body (Employer), a Construction Manager and a Materials Manager

Source: (Stock and Veen 1999)

7.1. Labor-Based Framework in road maintenance in Uganda

The labour-based approach is not a new concept or initiative as shown in Box 4. In Uganda, labour-based routine maintenance contracts were first introduced in 1992 as part of the Interim Maintenance Project. Among the

policy reforms of a powerful Inter-Ministerial Steering Committee was the emphasis of the “use of small labour-based contracts for routine maintenance operations; force accounts to be used only where labour-based contracts were not practicable”(ILO 1997:17). Moreover, LAPPCOM project, a joint initiative between the ILO and GoU, underscores the promotion and institutionalization of labour-based technology in all public investments (Taylor and Bekabye 1999). Although labor-based methods have proved to be a cost-effective alternative to equipment-based methods in many low-wage Sub-Saharan African countries, these methods have not been applied on a large scale (Stock 1996)

Box 4: Evidence of Labour-based methods in Road Maintenance in Uganda

These are some of labor-based contracting programmes targeted at manual routine maintenance activities:

1. The Uganda Transport Rehabilitation Project, aimed at the rehabilitation and maintenance of feeder roads in the four districts of Mbale, Pallisa, Tororo and Kapchorwa in Eastern Uganda
2. The African Development Bank (ADB) rural feeder roads rehabilitation and maintenance project, involved in routine maintenance of rehabilitated roads
3. Reintegration of demobilised soldiers programme, aimed at providing demobilised soldiers with skills and employment in rehabilitating feeder roads in ten districts
4. Projects under the Ministry of Planning and Economic Development labour-intensive project, which include the multi-sectoral project in Karamoja; the rehabilitation project in Luwero district; promoting local building materials project; South-West feeder roads project; and Masulita development project

Source: (ILO 1997:17)

Box 5: Labor-based Methods Success stories from other countries

Kenya: adopted labour-based approach for rural roads maintenance in 1999 to cover four districts in her road project tagged “Roads 2000”. A total of 137 contractors (comprising an average of 10 trainee members) have benefited from this programme. These contractor’s trainees have maintained a total of 900km length of road.

Mozambique: over 5000km of rural roads were upgraded between 1992 and 2000 using labour-based approach (Republic of Mozambique/UNDP/SIDA, 2002). It also created about 8 million worker-day of employment and more than 40,000 rural people worked on the programme

Cambodia: A major concern was the future maintenance of the improved infrastructure. Cambodia, like many other developing countries, has a rather lackluster track record when it comes to maintaining its road network. Therefore, the project developed a full maintenance management system at an early stage, which was installed immediately the first roads had been completed. As a result, the rural roads can now boast the best maintenance programme in the country. This system, based on petty contractors recruited in the vicinity of the roads, provides the regular maintenance work required to keep roads open through terrain which floods on an annual basis. **Source:** (Stock 1996)

8. Conclusion

The citizens who are also road users are very important stakeholders in the maintenance of the road network. They have a great deal of local knowledge about their roads that can help the relevant authorities better provide and maintain the road network. Old and new research on the matter and project experience concludes that in virtually all cases, an appropriate mix of labour and light machinery, under the Labour-Based Methods, can substitute for machines in developing countries in significant aspects of infrastructure production and maintenance. Moreover, if transport projects are to have a positive impact on poverty reduction, their design must be based on a clear understanding of the local situation; should incorporate the expertise, knowledge and perception of the local community and must substantially involve them in projects' implementation.

Based on Uganda's maintenance backlog and inherent challenges in using heavy machines for road maintenance, there is need therefore, to institute the reforms that will facilitate a sustainable expansion of the use of labor-based methods. In addition to employment and infrastructure development benefits of the methods, the approach has the potential to extensively increase citizen participation when the scope of its application in road maintenance is increased. Therefore, this paper has managed to show that, going forward, application and expansion of labour-based methods is an efficient and effective citizen participation-generating tool which may resolve the problem of the protracted deplorable and deteriorating condition of public roads in the country.

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Appendices

Appendix 1. Financial cost projects for Equipment and Labour based construction of Rural Roads

	Equipment based		Labour-based		
	Component	Details	Approx Cost	Details	Approx Cost
1	Labour Skilled	100man days@\$1/day	100	1000man days@\$1/day	1000
	Skilled	150man days@2\ day	300	200mandays @\$2/day	400
	Local Supervisory	25man days@2/ day	50	50man days@ \$2/day	1500
2	Tools and Equipment	Graders, dozers, trucks and hand tools	2900	Hand tools, wheel barrows,	1000
	Materials		1800		1800
		Total	4350		3500

Source: Stock 1990

Appendix 2. Economic Cost Breakdown and Unit Cost of Spot Rehabilitation Programmes

Project	Method of Implementation	Percentage Costs					Cost per KM(Ush M)
		Supervisor	Labour	Material	Equipment	Overhead	
GTZ(Labour)	Labour	50.3	37.9	5.7	0.8	5.3	3.46
RDSP	Labour	0.0	48.8	15.0	7.7	28.9	3.26
Average	Labour	7.8	47.1	13.6	6.7	24.9	3.29
GTZ(Equipment)	Equipment	30.7	3.4	3.4	2.5	60.5	2.8
Coffee	Equipment	25.2	1.5	1.5	4.7	66.4	2.2
Average	Equipment	26.8	2.1	4.1	4.1	64.7	2.4

Source: (Taylor and Bekabye 1999)

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