UTAFITI [New Series] Special Issue, Vol. 4, 1998-2001: 43-56

The Link Between Labour-Based Technology and Poverty Reduction: The Case of Rural Tanzania

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Abstract

This paper attempts to show the link between labour-based methods and poverty reduction using a long-term, economy-wide view. It is premised on the recognized critical role that economic infrastructure plays in the process of economic growth and poverty reduction. Some of the main issues used to demonstrate the existence of the linkage are economic performance, the prevalence of poverty mainly in rural areas, the critical role played by rural roads in growth and rural development, key for poverty reduction, presence of huge reserve of unskilled labour, especially during off-season periods, potential for employment creation and income generation, provision of opportunity for petty, community and smallholder contractors to learn and work on civil construction works, and the poor state of the rural economy. The paper points out that to realize the potential benefits of Labour-Based Technology (LBT) one needs to make a careful and serious consideration of the following: government commitment to labour-based technology at national and Road Agency level, ensure there is regular flow of funds within the sub-national government framework, need to reinforce the capacity of rural roads local contracting capacity, and the need to be clear with regard to responsibilities so that the responsible community/agency know exactly which roads fall under their jurisdiction to avoid attrition.

1. Introduction

The critical role that economic infrastructure plays in the process of economic growth has long been recognized in the literature, both as a final good providing services directly to consumers and as an intermediate input that enters into the production of other sectors in the process raising the productivity of factors employed. The presence of an efficient infrastructure does also create incentives to invest; its shortage or over-expansion raises costs of production and creates disincentives to invest. For low-income countries like Tanzania, sectoral income elasticities (proportional change in sector output relative to proportionate change

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in national income) are usually higher for transport infrastructure and water, compared to power and telecommunications with an average contribution to GDP of about 5.3 percent (Weiss, 1999). Thus, there is a positive relationship between growth of GDP and economic infrastructure. An economy cannot, therefore, afford not to invest in economic infrastructure.

The problem with low-income countries has always been the inability to mount enough resources to invest in economic infrastructure—roads in particular—the mode of transport that is distinctive compared to the other modes. This has necessitated the need to examine the kind of technology to be used so that infrastructure can be provided in a sustainable manner. The use of LBT in road rehabilitation and maintenance has, therefore, been considered as one potential technology based on this reality.

In the case of Sub-Saharan Africa, Tanzania inclusive, the use of LBT for road works has been an important part of the strategy to improve rural transport infrastructure in over the past twenty-five years. The argument has been that this method not only produces gravel roads of equal quality to those produced using equipment-based methods (EBM), but they are also instrumental in the creation of employment and generation of income in rural areas via a number of channels, and they do so in a cost-effective manner. One of the major concerns now in most developing countries following reform measures is the fact that economic growth has not significantly translated into employment creation. Poverty, especially in the rural areas is still high, and has in fact increased among the unemployed. The application of LBT is deemed to be one approach to create employment in most public infrastructure investment projects, such as rural feeder roads (ILO, 1999).

These potential gains notwithstanding, the use of LBT is still limited, not yet applied on a large scale, and not yet institutionalized. Doubts have also been raised in certain quarters as to the efficacy of the technology; and the exact magnitude of the anticipated benefits to an economy to justify their continued application. Probably that can explain the collapse of the use of the LBT soon after the pilot cases demonstrating technical and economic feasibility of the technology in terms of quality, cost and completion time ended.

This paper examines the use of LBT in road works with a particular focus on rural roads. The paper is premised on the argument that a cheap and extensive network of communications is the greatest blessing that any country can have from an economic point of view. This implies that a country needs to do all that it can to have this kind of network in place. For countries like Tanzania—which are still struggling with putting the macroeconomic fundamentals right, establishing

a network of communication that would provide the vital links to the various centers offering economic opportunities, countries that have high rates of the incidence of poverty, which they have vowed to fight—the use of LBT provides an inevitable, natural, alternative. The focus in the presentation is on the linkage between labour-based technology in road rehabilitation and maintenance and poverty reduction.

2. The LBT philosophy in perspective: developments and conceptual issues

Labour-based methods refer to methods that use labour and light equipment as the predominant mode of production. Thus the characterization of technology as labour-based does not preclude the use of capital inputs. LBT depend mostly on human muscle, and little on equipment, thus differentiating it from EBM. In theory, the potential mix of labour and equipment spans the full spectrum, with no clear boundary between the two methods. On the practical side, the combinations of labour and machinery that are used depend on whether the technology is labour-centred, in which case labour is the central resource (40-45 percent of total costs) and equipment plays a supporting role (25-35 percent of total costs); or equipment-centred, in which case the opposite holds (in terms of total costs the percentages are 10-15 labour and 60-70 percent capital) (Watugulu, 1991). Certainly in the case of road construction talking about LBT does not mean talking about zero equipment but less of it (light) and more of labour after the correct technical decisions have been made on having the optimal mix to ensure the cost-effectiveness of the LBT.

Road maintenance technology prior to the 20th century was dominated by intensive use of labour, complemented by simple hand tools and animal drawn equipment. The situation changed with technological advancement that saw labour intensive methods being gradually replaced by capital intensive methods. Among the arguments advanced against intensive use of labour included the intensity of supervision—which results in higher costs on site and training—low productivity, and low quality standards of output (Watugulu, 1991). But such arguments and the rationale for the shift to capital intensive methods has not been universal, and has been limited by the conditions pertaining in the countries concerned, depending on a number of factors. For developing countries the capital intensive methods have tended to increase the stress on the economies: not being able to address the fundamental problems facing such economies in areas of employment creation and income generation, which tends to defeat the objectives of development programmes of these countries. This has in the process opened up room for making appropriate choices on the type of technology to employ in road works (von Braun et al., 1991).

There is wide recognition now in the developing world of the fact that there is a wide range of production methods—with varying labour-capital combinations—available for road works covering construction, rehabilitation, paving and maintenance. The central thesis around this recognition has been that labour-based approaches are viable and offer high employment potential, as well as greater indirect benefits to the national economies than the conventional, equipment-based technology (ILO, 1999). Indeed in most cases a switch towards more labour-based methods has had very significant benefits to the poor in the form of, among others, employment opportunities and foreign exchange savings.

The relative economic efficiency of these methods depends on the relative prices and productivity of inputs, especially the cost of labour and capital. Although some tasks cannot be adequately done by hand, labour-based work methods (LBT) can be cheaper and more reliable for many tasks than capital-intensive works. Importantly, the use of LBT can generate income-earning opportunities for the poor. There is no doubt therefore that these methods are being promoted as one means of supplementing rural employment in developing countries (Gannon and Liu, 1997). It is important to note too that in most cases LBT has been found to be more appropriate to rural roads with an average daily traffic (ADT) of not more than 50 vehicles, complementing labour with simple equipment/tools (Watugulu, 1991). Thus one needs to be careful not to recommend a replacement of equipment based methods in all infrastructure works. A proper recommendation would be to encourage increased scope for the application of LBT where they are appropriate, and the economic benefits are greater than other alternatives.

Since 1971 the World Bank and ILO in collaboration with several governments and other agencies, have conducted studies to investigate the use of appropriate technologies for civil construction. Issues of investigation centered on (1) the technical feasibility of substituting labour for equipment in low-wage countries and (2) economic feasibility of LBT. The findings have been that in these countries the LBT could be fully competitive with EBM as long as workers were provided with adequate tools, good incentives, and there was effective management (Stock and de Veen, 1996).

In the countries where LBT has been employed, such as Benin, Bukina Faso, Cameroon, Kenya and Tanzania, the implementation modalities were at first via "force account" whereby public agencies carried out all aspects of construction "in house", and supervised, managed and controlled machines and labour directly. There has, however, been shift lately to contracting. This is looked at as a way of rationalizing the choice of technology in that by "neutralizing" the contracting process and administrative procedures, bidders would naturally select

a more appropriate technology mix, minimizing in the process "influenced" biases toward EBM. In Tanzania, LBT prevails in the construction of rural roads. It is important to emphasize though that the use of LBT should be recommended where appropriate, i.e., where these methods can provide a cost-effective alternative to EBM, which as few examples will show, is indeed the case for Tanzania like economies.

3. What Role for LBT: any linkage with poverty reduction?

It is interesting to note that LBT has a long history, touching even the developed world. Stock and de Veen (1996) point out that LBT can produce satisfactory results, and give examples of the Upper Ganges Canal, the first German Autobahns, the Trans-American Railway, and the Sahayak Canal as cases in point.

Gannon and Liu (1997) demonstrate that the use of LBT can generate income-earning opportunities for the poor. Thus LBT can be promoted as one of the means of supplementing rural employment in developing countries for both men and women. The localized benefits of LBT do therefore extend beyond the savings in the cost of road works and the creation of jobs. Other potential benefits may include savings on foreign exchange, injection of cash into the local economy, and transfer of knowledge of road works to local communities. All these in turn reinforce the sustainability of road maintenance activity, and create a sense of ownership by the participating communities.

The long-term impact of LBT with regard to poverty reduction stems from a number of factors. One, the fact that the LBT enables Tanzania-like economies improve their rural road networks in a competitive and cost-effective manner implies that positions of the poor will also improve in several ways. As has always been noted in the literature, infrastructure projects have high rates of return, something that is good for growth, a critical requirement for poverty reduction. The second arises through the contribution of infrastructure to the process of pro-poor growth, which is achieved through the high level participation of the beneficiaries, the poor local communities themselves, in the civil works involved and payments made to them.

Technology used for road works also have a role to play. Making much more use of the labour-based methods compared to the equipment-based technology provides opportunities for employment to the rural communities during off-season periods. This may also be implemented via the use of local small-scale contractors, and thus provides income-earning opportunities to these contractors who in usual settings would find it difficult to find their way into the contracting market, and helps enhance their capacity to undertake other civil construction activities.

More importantly, improvements can raise incomes of the poor through several mechanisms, including:

- Reduction in time spent on water and firewood collection
- Increase in crop production
- Improvement in marketing opportunities
- Access to social services and non-agricultural income generating activities.
- Time saving effect on women given that they play a critical role in water and fuel-wood collection.

A few country examples are enumerated below to show the contribution of LBT in poverty reduction (in employment figures and pecuniary terms) and overall economic development.

1. Ghana was the first country in SSA to launch a program introducing LBT in the local road contracting industry. The program created about 2.6 million person-days of employment, and rehabilitated 1,190 km of gravel roads. Also during the pilot phase, LBT were shown to cost approximately US$12,035/km, with an average rate of completion of 1.4 km/month per contractor; while the EBM cost approximated US$19,463/km, with an average rate of completion of 2.1 km/month (Stock, 1995). From April 1987 to July 1989, US$368,000 was paid as wages to workers.
2. The ILO estimates that LBT program in Kenya generated at least 24 million worker-days between 1974 and 1996, or more than one million worker-days per annum.
3. In Morocco, the Moroccan National Promotion generated about 7 million worker-days, or 4,000 new jobs annually (World Bank, 1971). The percentage of women hired on the construction sites ranged from 10 percent to 25 percent.
4. In Albania, the Albania Rural Roads Project (1995) generated an estimated 10,000 man-years of work in the region with the highest unemployment.
5. In Rwanda, LBM reduced foreign exchange expenditures by more than 60 percent.
6. Another important area relates to wage rates to unskilled labour. In Mexico, from 1971 to 1979, rural access roads were built using LBT, with labour inputs averaging about 50 percent of total costs.
7. In Tanzania, a case study of Rural Road Maintenance (RRM) in Tanga showed that LBT are more cost effective compared to EBM both in financial and economic terms, cheaper by 4.7 and 22.5 percent

respectively. This suggests potential for cost-saving, important for poverty reduction (Watugulu, 1991).

8. Again in Tanzania, the UNCDF's Mwanza infrastructural development project the average employment per trial road is around 50-60 locally recruited persons per day, with cash payments of about US$1.5 per day (Hoole et al., 1999). Construction costs are in the region of US$13,422 per kilometer. The wage component of the total cost has averaged 33 percent and 27 percent for first and second trial contract roads, ranging between 13 percent and 58 percent (see Table 1 for comparative figures of payments to casual labour). It is observed that even in countries where the wage rate fluctuates between US$4 and 8 per day, serious consideration should still be given to labour-based construction and maintenance alternatives.
9. In Uganda, after adjusting wages (shadow priced) for labour to reflect their resource value more accurately, the average cost of full rehabilitation by LBT was found to be 38 percent cheaper than equipment-based methods. The figure for spot rehabilitation was 60 percent cheaper for labour-based methods (ILO, 1999). These are important cost savings for an economy.
10. Labour-based construction methods facilitate the use of labour-based maintenance in that it is easier to maintain a hand-dug trapezoidal ditch by hand than to maintain a grader-dug V-ditch by hand.
11. LBT transfer knowledge of labor-based road works to local communities, knowledge that will be useful for later maintenance.
12. LBT have environmental advantages since they use less fuel, emit less exhaust, raise less dust, and are less likely to seriously damage terrain bordering a construction site, as less maneuvering space is needed.
13. A number of studies show that LBT are a cost-effective alternative to EBM in low-wage countries that have an adequate supply of underemployed labour that is motivated, can be supervised, and is equipped with appropriate tools (see Table 1).

Table 1: Examples of Salary Schemes for Casual Labour (US$/day)

Country	Range of amount paid
Tanzania, Nigeria	0.3 – 0.5
Uganda	0.4 – 0.5
DRC	0.5 – 0.8
Mozambique	0.8 – 0.9
Rwanda	0.9 – 1.5
Eritrea	2.0 – 3.0
Namibia	4.0 – 7.0

Source: Rausch (1994)

4. The Road Transport System and the Poverty Situation in Tanzania

The importance of roads to an economy is usually looked at in terms of three main aspects: accessibility they provide in reaching with ease areas offering economic opportunities, productivity growth argument (productivity effect and factor adjustment effect), and the welfare effect referring to access to social amenities (Creightney, 1993). The contribution of the road transport sector is also seen in its contribution to GDP, employment, capital formation, provision of intermediate inputs to all the other sectors of the economy, and poverty reduction in the sense that its presence unlocks areas offering economic opportunities (accessibility argument) (Likwelile, 1999). This places the road transport in a strategic position in the economy.

Current estimates show the total road network in Tanzania comprises about 85,000 kilometers (see Table 2). The network consists of 3,800 km of paved trunk roads, 6,500 km of unpaved trunk roads, 24,700 km of regional roads, and an estimated 30,000 km of district, urban and feeder roads.

Table 2: Road network by type, surface and condition (kilometers)

	Good		Fair		Poor		Total	
Trunk Roads	***km***	***%***	***km***	***%***	***km***	***%***	***km***	***%***
- Paved	2019	59.7	1267	29.4	544	26.3	3830	37.2
- Unpaved	1362	40.3	3036	70.6	2072	73.7	6470	62.8
Total	3381	32.8	4303	41.8	2616	25.4	10300	
Regional Roads								
- Paved	17	0.4	58	0.8	23	0.2	98	0.4
- Unpaved	4507	99.4	7458	99.2	12637	99.8	24602	99.6
Total	4524	18.3	7516	30.4	12660	51.3	24700	
District/urban Roads								
- Paved	40	1.0	98	1.0	362	1.0	500	0.6
- Unpaved	3955	99.0	9657	99.0	35888	99.0	49500	94.6
Total	3995	8.0	9755	19.5	36250	72.5	50000	
Total Roads	**11900**	**14.0**	**21574**	**25.4**	**51526**	**60.6**	**85000**	

Source: Ministry of Works, 1999

Out of the total network, only 5.2% are paved roads, the rest, i.e., 94.8%, are unpaved. For the unpaved roads, gravel roads comprise 9,300 km (10.9%), and earth roads amount to 71,900 km (84.6%). Thus a bigger part of the network is made up of earth roads. Roads in good condition constitute only about 14%, those in fair condition 25.4%, and the remaining 60.6% are in poor condition. There is also an extensive network of paths and tracks that connect villages, as well as providing important access to fields, sources of water and other facilities. It was estimated that by 1990, only about 15% of the trunk and 10% of the rural

roads respectively were in good condition. This says a lot about the economic situation in the country, the country's competitiveness in international trade, and the ability to fight poverty. There is need therefore to find appropriate ways and means to revamp the sector.

The quality of infrastructure influences the quality of services. The quality of services depends on the standard of the road as defined by maintenance outlays and strength (thickness) of the road. The composition of the road network in Tanzania suggests that the Tanzanian economy is subjected to some high level of vulnerability in that the network is costly to improve and sustain, given the resource constraints and the magnitude of the problem. This causes immense costs to the economy as transport costs (vehicle operating costs) increase, affecting the economy's competitiveness in the world market.

The road transport sector is central to the economy: non-performance in the roads sector has serious repercussions for the functioning of the Tanzanian economy. Evidence to the effect may be seen in terms of macroeconomic performance. The lackluster performance of the road transport sector has been cited as one of the causes that plunged the economy into the economic crisis that beset the country beginning in the late seventies. The poor condition of the road network, which had severely deteriorated for lack of adequate maintenance, thus causing immense costs to the economy, is a critical issue. Its continued non-performance is also one of the inhibiting factors to the country's economic recovery. It is well-documented that the quality and efficiency of the transport infrastructure and services is particularly important for the success of a country's economic liberalization measures and poverty reduction (Creightney, 1993).

Tanzania, like most other sub-Saharan African (SSA) countries, has the majority of its population (over 70%) living in rural areas, and is dependent on subsistence agriculture. Household Budget Surveys (HBS) show that poverty in Tanzania is mainly a rural phenomenon. About 65% of rural Tanzanians live below the poverty line, with rural households comprising about 92% of the poor in Tanzania (World Bank, 1996). Thus poverty eradication in the context of Tanzania would entail essentially rural development. Rural development is related to accessibility, which refers to the ability or ease of reaching various destinations or places offering opportunities for a desired activity. Improvements in rural travel and transport are, perforce, crucial for rural development and poverty eradication, and roads are of particular importance for accessibility in the rural setting.

This crucial link between LBT and poverty reduction in Tanzania is examined through neglect of road network maintenance and its implication to the wider

economy. One way is through the use of one of the accessibility indexes, in this case the Rank Weighted Road Density (RWRD) (The weighting corresponds roughly to the relationship between vehicle operating costs (VOC) on different types of roads. It captures the differences in accessibility given by various types of roads. The higher the index the less accessible the region. The figures are a bit old, extracted from Amani et al., (1987), A Regional and Inter-regional Study of Tanzania, Part I, Economic Research Bureau Monograph Series 8-1. They still provide a fair reflection of the situation on the ground.). This emphasizes the need to ensure that roads are kept in good condition. The mere presence of a road is a necessary but not a sufficient condition. Table 3 shows the average road length for each region, the degree of accessibility via RWRD, and measures of poverty (Headcount Index, Human Development Index (HDI) and Wealth Index).

Table 3: Roads and Poverty/welfare comparisons

Region	Average DR length in kilometers	Rank Weighted Road Density	Headcount Index	HDI	Wealth Index
Arusha	6.7	14	21.7	0.533	25
Coast	8.5	3	33.6	0.348	10
Dodoma	8.5	14	40.7	0.399	7
Iringa	4.1	6	38.3	0.425	5
Kagera	9.9	14	27.2	0.370	3
Kigoma	15.5	18	59.6	0.265	1
Kilimanjaro	5.5	7	15.5	0.536	24
Lindi	4.3	14	49.6	0.236	2
Mara	12.8	7	38.5	0.388	27
Mbeya	7.1	9	32.4	0.405	11
Morogoro	12.2	9	33.6	0.411	3
Mtwara	2.2	5	52.1	0.319	2
Mwanza	8.4	11	21.5	0.420	24
Rukwa	10.3	20	52.8	0.288	3
Ruvuma	9.7	9	28.3	0.358	3
Shinyanga	8.9	9	36.5	0.375	4
Singida	21.9	9	49.6	0.347	18
Tabora	9.9	18	29.1	0.344	4
Tanga	7.4	1	30.1	0.429	4
DSM		2	1.5	0.658	35

Source: Draft, Tanzania Human Development Report, 1997, World Bank Report 1995, Amani et al., 1987, InterConsult, National Road Network Database, 1999

Theoretically, with regard to accessibility, one would postulate that the presence of a road has an inverse relationship with poverty (low headcount index and high HDI and wealth indices), in that the road offers opportunity for agents to reach areas offering economic opportunities with relative ease. The wider the coverage, in terms of kilometers and connectivity (avoiding detours), the better the chances of reaching a wider area, the better the chances of reducing poverty. In the case of rural Tanzania, the extent of road coverage is examined via the length of an average district road (DR) in a region.

The theoretical underpinning expressed above does not seem to hold in the case of Tanzania. One observes that regions that have high average district road lengths, e.g., Kigoma, Rukwa and Singida are the poorest as reflected by high headcount index and low HDI and Wealth Indices. This is explained by the fact that accessibility is poor as evidenced by high RWRD. It means that although investments were made in road infrastructure in these regions, road maintenance was neglected, hence the decay and the positive relation with poverty. To facilitate poverty reduction, these roads have to be rehabilitated and maintained to keep them in good condition. The cost-effective approach as demonstrated in Watugulu (1991), among others, is to use LBT, which would in the process increase income generating opportunities.

This link can also be seen in terms of the loss the Tanzanian economy incurs due to non-maintenance of the road network. Estimates show that the Tanzanian economy is losing more than US$ 200 million per annum in direct costs as a result of road deterioration and inefficient operations in the road sector (World Bank, 1990). This is a huge amount which if saved could be utilized in pro-poor programmes. A larger part of this loss comes from the fact the rural sector where the majority of the population live is cut-off from the rest of the economy, the available road infrastructure is costly to use making shipment of produce costly, and narrows down the window of opportunity for the poor rural population in terms of not being able to participate in non-farm activities. The use of LBT in rural road works would alleviate this problem and enhance chances of reducing poverty.

5. Government Policy Stance and the Problem of Poverty

Following the economic reform measures, the government of Tanzania has emphasized the central role that the private sector and the community at large can play in economic management. One of the critical areas identified by the government of Tanzania (GOT) in dealing with the problem of poverty relates to rural sector development and export growth. As a component of the overall strategy, government policy gives priority to the rehabilitation and maintenance

of rural roads by the local communities (URT, 2000). With regard to the mode of work, emphasis is given to the use of labour-based methods with the view that this will create long-term employment and contribute towards the reduction of poverty (Mkapa, 2000). Indeed the government initiatives and policies have made LBT a key component in the implementation of road works which is putting LBT at the forefront of current thinking and debate. All partners in the construction industry are beginning to play key roles in its expansion, and the environment is right for the major shift to institutionalizing LBT and putting it in national framework. All the key policy documents, i.e., the National Poverty Eradication Strategy (NPES), Vision 2025, and the Poverty Reduction Strategy Paper (PRSP), emphasize the critical role that the rural roads sector can play.

It is important to note that the process of poverty eradication is embedded in a broad range of socio-economic activities to which roads and services derived from them provide intermediate inputs. Poverty reduction does also have something to do with the manner in which the poor people participate in the growth process. Rural roads are an important form of public infrastructure, providing cheap access to both markets and agricultural output, and for modern inputs and to social and economic opportunities. Thus given the limited policy instruments for reaching the remote rural poor, road building would seem desirable on, among others, distributional grounds.

To eradicate rural poverty one has to take into account also the nature of the (rural) economy. The state of the (rural) economy dictates the ability of such an economy and that of its economic agents in terms of what is appropriate and affordable. The rural economy is agricultural. A majority of the economic agents are poor and depend, for their survival, on abundant unskilled labour. Women are the major participants in agricultural activities. The rural economy is affected also by limited access to competitive markets, inefficient supply of inputs, and is less integrated.

6. Conclusion: challenges for the future

This article paper has attempted to show the link between labour-based methods and poverty reduction using a long-term, economy-wide view. Economic performance, the prevalence of poverty mainly in rural areas, the critical role played by rural roads in growth and rural development, key for poverty reduction, the presence of huge reserves of unskilled labour, especially during off-season periods, potential for employment creation and income generation, provision of opportunity for petty, community and smallholder contractors to learn and work on civil construction works, the poor state of the rural economy, have been some of the main issues used to demonstrate the existence of the

linkage. All provide pointers to the effect that labour-based technologies present the natural alternative to Tanzania-like economies in view of the presence of expansive but poorly kept rural road networks, deep resource constraints in the midst of pervasive poverty.

Indeed a more labour-based approach to infrastructure development is one such policy that can create employment and help ensure sustainably high and broad-based growth. Because much infrastructure development—such as rural road improvement—is located in rural areas and can absorb unskilled labour, these work opportunities are available to the poorest members of the community. This would have significant poverty reduction effects, not only at the national level, but also at the household level.

To realize the potential benefits of LBT, a few aspects require a careful and serious consideration to ensure effectiveness and sustainability of LBT:

- Government commitment to labour-based technology at national and Road Agency level
- Regular flow of funds within the sub-national government framework
- Reinforcing local contracting capacity of rural roads to ensure wider community participation and better provision of services in terms of the quality of roads.
- Clarity with regard to responsibilities so that the responsible community/agency knows exactly which roads it has to manage to avoid attrition.

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