Data Collection Survey for Rural Roads Development/Maintenance in the United Republic of Tanzania

Final Report

March 2012

JAPAN INTERNATIONAL COOPERATION AGENCY

PADECO Co., Ltd

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Abbreviations and Acronyms

AfDB	African Development Bank
ASDP	Agriculture Sector Development Programme
ATTI	Appropriate Technology Training Institute
CAF	Contractors Assistance Fund
CATA	Contractors Association of Tanzania
CBG	Capacity Building Grant
CDG	Council Development Grant
CRB	Contractors Registration Board
DANIDA	Danish International Aid Agency
DFID	Department for International Development
DP	Development Partner
EBT	Equipment Base Technology
EU	European Union
FY	Financial Year
IDA	International Development Association
IDU	Infrastructure Development Unit
ILO	International Labour Organization
JICA	Japan International Cooperation Agency
LBT	Labour Based Technology
LGA	Local Government Authority
LGDG	Local Government Development Grant
LGTP	Local Government Transport Program
MDG's	Millennium Development Goals
MKUKUTA II (NSGRP II)	National Strategy for Growth and Reduction of Poverty II
MOF	Ministry of Finance
MOW	Ministry of Works
NORAD	Norwegian Agency for Development Cooperation
NTP	National Transport Policy
O&OD	Opportunities and Obstacles to Development
ODA	Official Development Assistance
PMO-RALG	Prime Minister's Office, Regional Administration and Local Government
PPRA	Public Procurement Regulatory Authority
RFB	Roads Fund Board

RS	Regional Secretariat
RSPS	Road Sector Programme Support
SACCOS	Savings and Credit Cooperative Societies
TANROADS	Tanzania National Roads Agency
TAS	Tanzania Assistance Strategy
TASAF	Tanzania Social Action Funds
TEMESA	Tanzania Electrical, Mechanical and Electronics Service Agency
TEP	TANROADS Equipment Pool
TRA	Tanzania Revenue Authority
Tsh	Tanzanian Shilling
TSIP	Ten Year Transport Sector Investment Program
UNDP	United Nations Development Program
USAID	U. S. Agency for International Development
USD	United States Dollar
VTTP	Village Travel and Transport Programme

Exchange Rate [*]

1.00 TZS = 0.051 JPY
1.00 USD = 80.48 JPY
(March, 2012)

Financial Year in Tanzania is from July to June.

[*] Based on the official exchange rate used by JICA (March, 2012)

1. Introduction

1.1 Study Background

1.1.1 Background

The total length of the trunk and rural roads in the Tanzania mainland is estimated to be 91,532 km from several reports published in 2011. The rural roads network (about 58,037 km) is under the responsibility of the Prime Minister's Office Regional Administration and Local Government (PMO-RALG). Paved ratio of the rural roads still remains at the level of 1.4%. The pavement conditions are generally poor and unsatisfactory. These conditions make industries' productivity low and the local area poor.

Based on the above background and conditions, from 2006 to 2011, JICA, at the request of the Tanzania Government, conducted the technical cooperation project on strengthening the function of training and comprehensive coordination (LBT Technical Cooperation Project: Training Ability Enhancement Project) through ATTI (Appropriate Technology Training Institute), which was under then Ministry of Infrastructure Development as the implementation agency. The training ability of ATTI and the skill of road engineers of local governments and contractors have improved. However, the road development and maintenance projects utilizing LBT have never spread widely throughout Tanzania.

According to the evaluation of the LBT Technical Cooperation Project, the following issues have been found in widening the application of LBT:

I. Limited number of construction equipment necessary for quality LBT works; and
II. Limited planning and implementation ability of local government engineers and contractors.

In addition, insufficient fund allocation for rural road development and maintenance was also pointed out. Although the importance of rural road development and maintenance is widely recognized by the Tanzania Government and the development partners, the policy measures to overcome the above issues have not been clearly determined.

1.1.2 Objectives

The objectives of the survey are:

I. To identify present conditions and issues of rural road development, and
II. To collect information that will provide the basis for examining medium and long term Japanese assistance plan for rural road development in Tanzania.

1.2 Survey Area

The survey areas cover the city of Dar es Salaam, Dodoma Region, Iringa Region, Mbeya Region and Mwanza Region (cf. Figure 1-1).

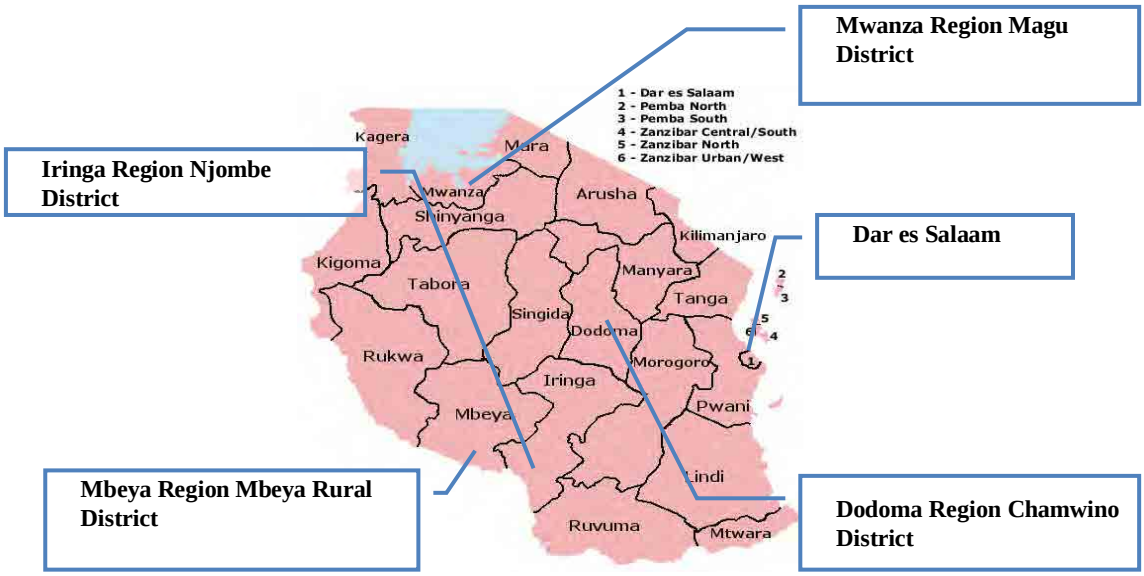


Figure 1-1: Survey Area

1.3 Survey Task

1.3.1 Survey Task

The Survey Team carried out the survey according to the tasks indicated in Table 1-1.

Table 1-1: Survey Tasks from the Terms of Reference (TOR)

Task	Description of Task
1.	Preparatory work: review documents related to rural roads and prepare the inception report (ICR)
2.	Review of current policy of Tanzanian rural roads (priorities, budget amount, and contribution to agricultural and/or industrial development) through review of the latest policy
3.	Survey on operations of rural road management by LGA: road inventory management, annual schedule, decision makers, procurement management, disbursement procedures, budget request and expenditures, construction supervision, human resources, and state of adoption of LBT.
4.	Survey on contractors in rural areas: number of contractors based on CRB registration, human resources and experience, issues on adoption of LBT, achievements by each LBT or EBT works, management ability, and the opportunity for management training.
5.	Survey on status of machinery and equipment for rural road development and maintenance: data (quantities and type, status of maintenance, years in service, and operation rate) on machinery and equipment owned by TANROADS, TEMESA, LGAs, and contractors, and information on dealers and post-sale services provider.
6.	Survey on feasibility of machinery and equipment leasing service: check the existing leasing agencies and their leasing system, and survey potential agents' ability for providing leasing service.
7.	Survey on budget planning and absorption for each type of funds (LGDG, LGTP, Roads Fund, ASDP, etc.) available for rural roads maintenance.
8.	Study on funding schemes for rural road management: (I) procuring machinery and equipment for rural road development and maintenance; (II) points of concern in the case of project-oriented funds; and (III) possibility of adopting the Basket Fund through review of the systems of DANIDA and NORAD.
9.	Survey on development partners' trends on rural road development and maintenance
10.	Home-based work for the final report (FR)

1.3.2 Work Flow

This survey was conducted as shown in the flow diagram in Figure 1-2.

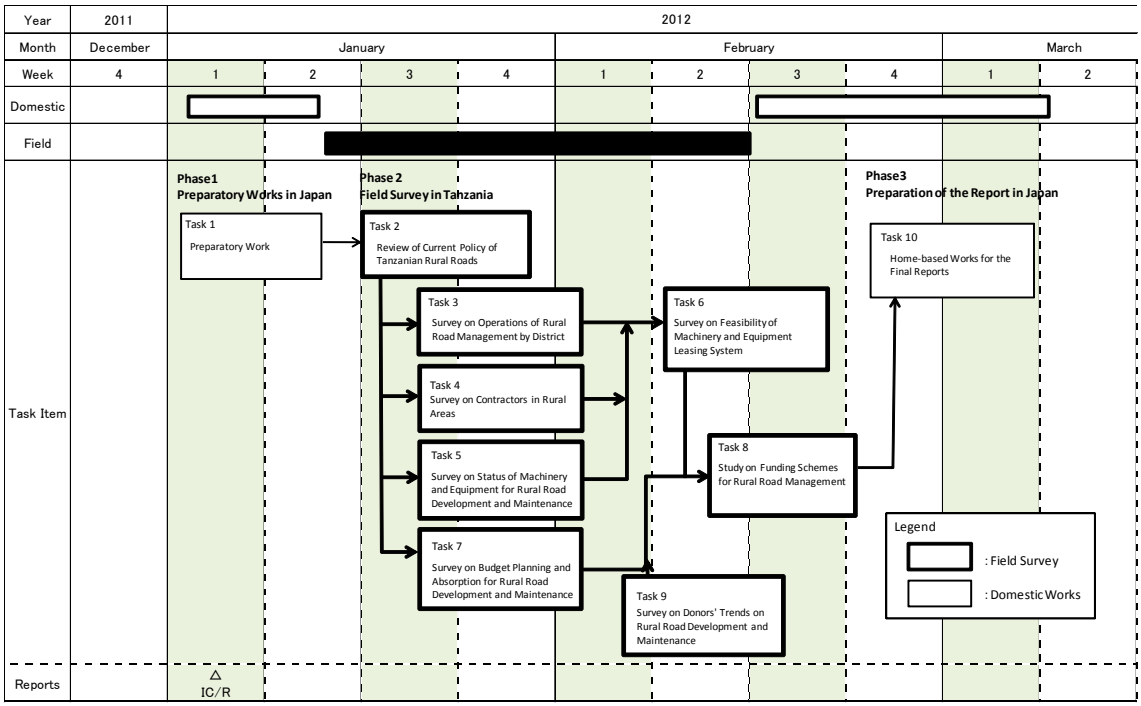


Figure 1-2: Flow of the Survey

1.4 Work Program

1.4.1 Survey Team Members

JICA Survey Team, headed by Mr. Hiroshi Aoki, was comprised of members of PADECO Co., Ltd. The members and their expertise are shown in the table below.

Table 1-2: JICA Survey Team Members

No.	Expertise	Name	Company
1.	Team Leader/ Road Development and Maintenance	Mr. Hiroshi Aoki	PADECO
2.	Road Construction	Mr. Noriaki Ebii	PADECO
3.	Road Construction Machinery	Mr. Shinya Hirano	PADECO
4.	Funding Scheme Analysis 1	Mr. Koichiro Tamura	PADECO
5.	Funding Scheme Analysis 2 (only in Japan)	Mr. Kenji Kimura	PADECO

1.4.2 Survey Schedule

The total period of the survey was about 2.5 months. Preparatory work began in early January, 2012 in Tokyo. Field work started in the middle of January 2012 and continued until the middle of February 2012. The interviews were conducted for 5–6 days per city for a total of 27 days of field work. The final report was presented in late March 2012.

1.5 Report Organization

This report consists of seven chapters as described below.

- ✓ **Chapter 1** provides background information, the objectives, and tasks of this survey;
- ✓ **Chapter 2** provides information on the government policies that emphasize importance of the rural road sector and allocation of development and maintenance budget to the sector in Tanzania;
- ✓ **Chapter 3** provides information on the status of rural road management by four District Councils compared with TANROADS management in order to find issues in rural road management;
- ✓ **Chapter 4** provides information on the rural construction market through interviews with eleven contractors mainly consisting of Class 5 contractors, who play an important role in the rural road sector, as well as the status of road machinery: ownership and hiring/maintenance service in the public and private sector;
- ✓ **Chapter 5** provides information on LBT in practice and ATTI's impact through hearing concerned entities' intentions and review of local governments' performance and procurement policy and contractors' breakdown of profit;
- ✓ **Chapter 6** provides information on funding schemes available within Japan's ODA that might be applicable to assisting the rural roads sector in Tanzania as well as those that have been used by other development partners to support the sector;
- ✓ **Chapter 7** concludes the report, providing major issues and recommendations upon considering the provision of financial assistance to the rural road sector.

2. Rural Roads Development Policy

2.1 Government Policy

Transport is one of the key sectors of the economy. It plays a critical role in day-to-day economic development activities. Among various transport modes, roads play important roles as catalyst in production, as it facilitates movement of inputs to production points and outputs from production points to storage or to market places. Its role is crucial to all aspects of social and economic life of society.

Overall policy objective is to develop safe, reliable, effective, efficient and fully integrated road transport infrastructure and operations which will best meet the needs of travel and transport at lower costs. Efficient and reliable transportation network supports every field of economic activities especially in rural areas where poverty reduction is given utmost importance.

The Government has given high priority to the road transport sector as can be seen from funding levels. The Roads Fund for maintenance has gone up to Tsh 287 billion in 2011[1] compared to Tsh 80 billion five years ago. However the amount given to rural roads development/maintenance is not yet enough to support rural people's economy and life.

According to the Ten Year Transport Sector Investment Program (TSIP) Phase I 2007/08–2011/12, the overall objective of the proposed investment program for local roads is to support national policies and strategies on rural development and poverty alleviation through development and maintenance of the local transport infrastructure. The proposed investment program will follow the target of the Tanzania Development Vision 2025, the Millennium Development Goals (MDGs), the MKUKUTA II and the Rural Development Policies/Strategies.

2.1.1 MKUKUTA

National Strategy for Economic Growth and Reduction of Poverty (NSGRP) more commonly known as the Swahili abbreviation "MKUKUTA II" has the major objectives of alleviating poverty and fostering development in Tanzania. Under the MKUKUTA II, the transport sector has been considered one of the key sectors that contribute to poverty reduction. In the strategy to achieve these objectives of NSGRP, June 2005, particular emphasis is placed on the need to promote strong and equitable growth through the improvement of the transport infrastructure network. This will not only improve connections between producers and markets but also improve access to social services for reducing poverty.

Because of the poor conditions of the local government transport infrastructure, there is a risk that certain group of the population would be left behind from economic progress. Communities with inadequate physical access are likely to remain isolated and disengaged from the economic activities. Private sector investment will be discouraged from these areas due to high transport costs and lack of supporting services. Moreover, poor access will make the provision of social and economic services to these communities difficult and expensive, which further reinforce their relative disadvantage compared to the rest of the society.

The MKUKUTA II will only be successful if there is a satisfactory level of local government transport infrastructure. A review of the Implementation of the MKUKUTA in the transport sector was conducted in 2010 by an inter-ministerial task force of the former Ministry of Infrastructure Development (MOID). The MOID review of MKUKUTA II states that District,

[1] Draft Policy Analysis Paper, 5th Joint Infrastructure Sector Review 2011, Directorate of Policy and Planning.

Urban and Feeder roads should be given top priority for inclusion in the MKUKUTA II, as the provision and maintenance of these roads impact most on poor people.

2.1.2 Millennium Development Goals

The Millennium Development Goals (MDGs) has the growth and poverty alleviation objectives. The investment of transportation sector aimed at achieving a level of transport systems in the country that would enable sufficient provision of transport services that are effective and affordable. These services should be able to adequately support other socio-economic sectors to achieve the aspiration of growth and poverty alleviation.

One of the basic thrusts of the Millennium Development Goals (MDGs) is to make economic growth more inclusive and bring the entire population to at least basic standards of health and education. Poor quality of local roads and transport services are critical obstacles to the achievement of this goal.

2.1.3 Vision 2025

The target of the Tanzania Development Vision 2025 is to reduce poverty by the year 2025. It states that "investments in road infrastructure to promote rural development is part of the driving forces that needs to be promoted and utilized to achieve the attributes of 2025 for Tanzania (high quality livelihood; peace, stability and unity; good governance; well educated and learning society; and learned competitive economy capable of producing sustainable growth and shared benefits) and its corresponding targets".

In the vision the economy will grow from the present Gross Domestic Product (GDP) per capita to the level of typical medium developed country, with an estimated per capita Gross Domestic Product of USD 2,500 [2]. Among other things, the achievement of this vision will require an economic growth rate of at least 8% per annum, an adequate level of physical infrastructure and good access to economic and social services for all Tanzanians.

Eliminating poverty is the highest priority to realize of this vision with reducing inequality and enhancing social cohesion. The achievement of the vision will be brought by a transformation of a low productivity agricultural economy to a highly productive agricultural activities supported by modern technologies in the rural areas. The society described in Tanzania's Development Vision 2025 will require a local transport system that provides all people with adequate access to jobs, markets, education and social services. The rural roads network should encourage more active economic activities in agriculture and industry sectors.

2.1.4 PMO-RALG Strategic Plan 2009/10–2011/12

The main function of PMO-RALG is to enable Local Government Authorities (LGAs) to provide quality services. In order to achieve this, six other functions have been identified, which are as follows:

- managing critical interfaces between stakeholders;
- building the capacity of Regional Secretariats;
- providing quality information;
- providing sound advice to LGAs;
- building the capacity of LGAs; and
- providing legal support and advice.

[2] Local Government Transport Programme (LGTP) Phase I (2007–2012) Final Draft, Dec. 2007

This Strategic Plan is a three Year Plan and has come up with ten broad objectives from which targets, activities and performance indicators have been drawn.

Since PMO-RALG has wide fields of scope and responsibilities of local government activities, local transportation is one of the elements of the local government activities. In order to comply with and respond to the national development framework strategies, PMO-RALG will adopt and use the strategies of improved services and poverty reduction to implement the revised strategic Plan. PMO-RALG is committed to facilitating a process where quality services are delivered to people in Tanzania. Basic infrastructure is a prerequisite to economic development. Local Government Authorities are the major players to take these responsibilities. For this reason it is very important that the crucial role of PMO-RALG is in relation to poverty reduction.

District, Urban and Feeder roads are managed by the 133 Local Government Authorities (LGAs). City, Municipality, Town and District Councils are acting as roads authorities. The LGAs carry out inventory and condition survey, planning, prioritization, project design, tendering and supervision of maintenance and development works. The LGAs also provide technical supports to the villages/communities in maintaining and improving the Community Roads. The LGAs are supposed to report on road implementation activities to PMO-RALG through Regional Secretariat offices.

2.1.5 Ten Year Transport Sector Improvement Program (TSIP)

The TSIP is planned to be implemented in two phases of 5 years each from financial year 2007/08 to 2016/17. The program takes cognizance of the existing macro-economic development programs including the Tanzania Development Vision 2025, National Strategy for Growth and Reduction of Poverty (NSGRP), Tanzania Assistance Strategy (TAS) and Millennium Development Goals (MDGs).

The program takes into account the need for integration of all transport modes or sub sectors which include roads, railways, ports, and airports with a view of acting as a necessary input and catalyst for the achievement of aforementioned economic goals. It should, however, be noted that ongoing projects under various parallel programs or plans will be part of the TSIP without disturbing their current implementation arrangements.

The TSIP main objective is to realize the Transport Policy Implementation Strategies by incorporating the National Transport Policy (NTP) objectives into time-based programs. The objectives of TSIP are as follows[3]:

(i) Develop adequate, reliable, cost effective, efficient, safe, environmentally friendly and seamless transport infrastructure.
(ii) Facilitate the mobilization of local and international resources to speed up transport infrastructure development in an integrated manner.
(iii) Enable the transport sector to contribute to the growth, leading to better distribution of income and therefore to the struggle against poverty and hence achieve sustainable socio-economic development and integration.
(iv) Foster and catalyze the involvement of public-private sector partnerships.
(v) Ensure gender mainstreaming in all issues related to the transport development.
(vi) Ensure that transport development takes on broad issues related to the disadvantaged groups, e.g. woman and children, physically disabled persons, rural communities, etc.
(vii) Enhance efficiency of transport services internationally, nationally and locally.

[3] 10 Year Transport Sector Investment Program (TSIP) Phase I 2007/08–2011/12, MOID.

2.1.6 National Transport Policy

The National Transport Policy (NTP, 2003) describes how the transport sector will contribute to national goals and objectives. The vision of the policy is "*to have efficient and cost-effective domestic and international transport services to all segments of the population and sectors of the national economy with maximum safety and minimum environmental degradation.*" The Transport Sector Improvement Program (TSIP, 2007) describes how this will be achieved through practical measures to steadily improve and sustainably maintain the transport system in the first phase between financial years 2007/08 and 2011/12.

The NTP and the TSIP promote a coordinated approach to transport improvements. This includes coordination between different levels of the transport infrastructure network and between different modes of transport. In most cases, the local government transport infrastructure is the weakest link in the transport network. This is the main justification for a special effort to improve the local government transport infrastructure, whilst not losing sight of the need for connectivity and interaction with other transport sub-sectors.

2.1.7 Labour Based Technology[4]

Labour-based technology (LBT) aims at applying a labour/equipment mix that gives priority to labour, but supplements it with light equipment where necessary for reasons of quality or cost. It can be an economically efficient technology if it is used in a properly planned manner.

LBT makes optimal use of local resources such as labourers, local material, and tools and light equipment that are nationally or regionally produced. LBT for road maintenance has been operational in Tanzania for over 20 years. The application/use of LBT in provision of road maintenance aims at properly planned use of labour together with a small scale equipment. The essential link between LBT and poverty reduction has been established and supported by the majority of stakeholders at all levels by creating temporary and permanent employment opportunities thereby generating income.

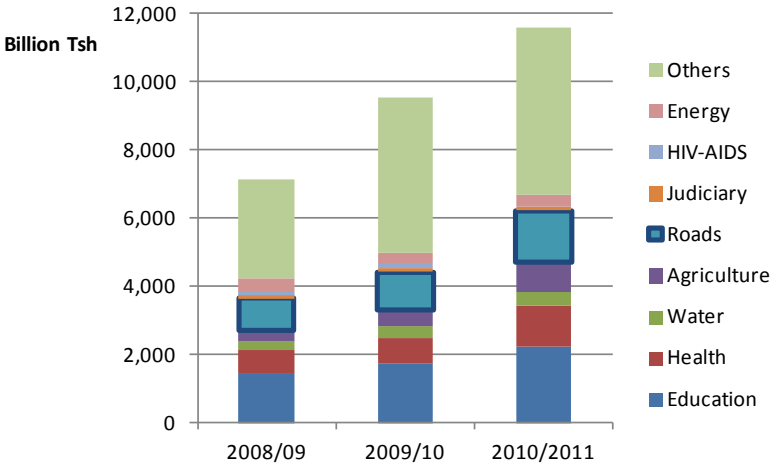
The Ministry of Works in 1996 issued a statement putting emphasis on the use of labour-based methods in road works. This statement advised planners, designers and all road projects implementing groups to consider the use of this approach in all road projects when it is appropriate. There are regions and LGAs where these efforts facilitated the successful application of LBT though at project level involving various stakeholders.

In December 2000, the President of the United Republic of Tanzania, challenged Engineers to use local recourses to the fullest extent for fighting poverty with innovative ideas and technology. In May 2003 during the meeting with road stakeholders in road construction, he also made statements on the need of promoting LBT for construction and maintenance of roads. As one of the strategies for poverty reduction initiatives, LBT has been identified as an appropriate approach toward implementation of roads development projects. The Government's vision 2025 emphasizes quality livelihood and social justice of the people in the country, through creation of job opportunities in rural areas resulting in producing income.

2.2 Budget Allocation to the Rural Roads Development

As described in the previous section, the Government of Tanzania puts high priority on the road sector, which actually is the second largest destination of the governmental budget. Figure 2-1 shows the allocation of the expenditure (including the recurrent and capital expenditures) by major sector. The road sector accounts for 11%–13% of the total amount.

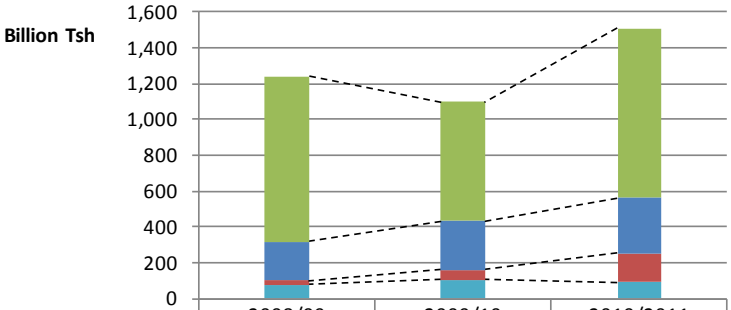
[4] The Program Document, MOW, PMO-RALG December 2003.



Source: Budget Background and Medium Term Framework 2009/10-2011/12 and 2010/11-2012/13, Ministry of Finance, 2009 and 2010

Figure 2-1: Allocation of Government Expenditure by Sector

The road sector budget has been allocated by type of road (national or rural roads) and by purpose (recurrent or capital expenditure) as shown in Figure 2-2. The allocation for rural roads has been much smaller than that for national roads (e.g., 16.9% of total in FY 2010/11[5]), although the share as well as the amount for rural road works have increased in recent years. This allocation, however, is far below the amount actually needed for rural roads development and maintenance. Compared with the allocation within the expenditure for national roads, the government appears to put an emphasis on maintenance (recurrent) works for the rural road sector though the capital expenditure increased somewhat significantly in FY 2010/11.



	2008/09	2009/10	2010/2011
National-Development	925	664	944
National-Recurrent	215	271	307
Rural-Development	22	58	162
Rural-Recurrent	79	104	93

Source: Budget Background and Medium Term Framework 2009/10–2011/12 and 2010/11–2012/13, Ministry of Finance, 2009 and 2010

Figure 2-2: Government Expenditure in Road Sector

[5] The financial year in Tanzania starts July 1st, ending June 30th.

2.3 Financial Sources for Rural Roads Development and Maintenance

2.3.1 Overview

There are several sources of funds specifically used for rural roads development and maintenance in Tanzania including the fund under Local Government Transport Programme (LGTP) and the Roads Fund. The Infrastructure Development Unit (IDU) of PMO-RALG is responsible for these funds at the national level. Table 2-1 shows the distribution of these road budgets in the past three financial years. The budget of the Governmental of Tanzania in the table is allocated mainly to the construction of structures such as bridges while the Roads Fund is used mostly for road maintenance as described later.

Table 2-1: Budget Allocated for Road Works (under the responsibility of IDU)

Financial Source	Financial Year (Unit: Billion TZS)		
	2009/10	2010/11	2011/12
LGTP (Denmark financed portion)	7.0 (6.9%)	3.5 (3.4%)	0.0 (0.0%)
LGTP (GOT financed portion)	9.9 (9.8%)	15.7 (15.1%)	14.5 (13.4%)
Roads Fund	84.5 (83.3%)	84.5 (81.5%)	94.0 (86.6%)
Total	101.4 (100%)	103.7 (100%)	108.5 (100%)

Source: 5th Joint Infrastructure Sector Review Meeting Roads under Local Government Authorities, PMO-RALG, Oct. 2011.
Note: The expenditure for rural roads in Figure 2.2 that is much larger than the figures in this table is considered to include funds from sources other than IDU.

In addition to the above, LGAs also has a discretionary budget called Local Government Development Grant (LGDG) that can be used for road projects as well as for other purposes based on their budgeting plan. This multi-sector grant is handled by the Local Government Division of PMO-RALG at the national level.

In principle, the planning schedule of these major financing sources is integrated in the standard annual cycle of the governmental budget for the purpose of following simple planning process. Figure 2-3 represents a typical process of budgeting in the rural road sector although this schedule varies slightly by LGA.

Activities	Responsibility	1st FY												2nd FY	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Demand collection from lower levels	Council Engineer														
Evaluation of demand	Council Engineer														
Inventory survey / Draft annual planning	Council Engineer														
Issue of budget ceiling	MOF / PMO-RALG														
Estimation / adjustment of budget	Council Engineer														
Approval within Councils	District Executive Director														
Finalization and request of budget	LGA / RS / PMO-RALG														
Budget approval	MOF / Parliament														
Performance Agreement	RFB / PMO-RALG / LGA														
First release of budget	MOF / RFB														
Detailed planning of works	Council Engineer														

Source: JICA Survey Team based on interviews

Figure 2-3: Standard Annual Budgeting Schedule

The administration and the use of these financial sources are reviewed in the following subsections. Other financial sources are also touched upon which can be used for rural roads development and maintenance.

2.3.2 LGTP

(1) Background[6]

Local Government Transport Programme (LGTP) was formulated to make progress on the National Transport Policy and the Transport Sector Investment Programme (TSIP). The first five-year phase of LGTP was set from 2007/08 to 2011/12 and the second phase being planned by PMO-RALG together with relevant government agencies and development partners as of February 2012. The strategy for the first phase was as follows:

1) **Focus on basic access:** the first priority for projects under the LGTP was put on providing basic access for the majority of the population within a short time.
2) **Use of government institutions and procedures:** external support from development partners was pooled or organised as budget support and was channelled through the Ministry of Finance. Such arrangement aimed to remove the distortions caused by support of development partners toward specific projects and programmes in accordance with a Joint Assistance Strategy (JAST) and TSIP framework.
3) **Capacity building:** this component was included as an important measure for long-term sustainability and national development.
4) **Labour-based methods:** the use of labour-based method was recommended to generate a range of benefits such as skills development, job creation and increased participation of women.
5) **Maintenance of infrastructure:** the focus was generally put on maintenance activities (e.g., spot improvements) rather than full rehabilitation and upgrading in order to secure reliable access on the road networks.
6) **Unclassified infrastructure:** local initiatives were encouraged for improvement and maintenance of unclassified local transport infrastructure.

(2) Funding Process

Under the LGTP, funding arrangement was established for maintenance and improvements of infrastructure. The LGTP funding process was integrated in the government's budgeting procedure as mentioned in the second strategy of the programme. First, each LGA prepares an annual plan of the target LGTP activities for budget request. The plan is submitted to IDU of PMO-RALG through coordination by the Regional Secretariats (RS). PMO-RALG reviews the annual plans prepared by LGAs and checks their relevance and consistency with the overall LGTP plans. Then, an Annual Performance Agreement is signed between PMO-RALG and each LGA after approval of the governmental budget and modifications of the annual plan.

LGAs order road works after release of the agreed budgets. The fund disbursement is scheduled every quarter. Progress of the agreed activities has to be reported by LGAs to PMO-RALG in the form of quarterly reports. RS engineers assist this monitoring at the LGA level. PMO-RALG compiles the national summary report based on the information collected from LGAs.

(3) Performance

At the beginning of LGTP Phase 1, the overall budget for the planned five years was estimated at USD 431.8 million (Tsh 552.1 billion)[7]. This total amount included maintenance, development and capacity building activities mainly for securing basic rural access. As shown

[6] Local Government Transport Programme (LGTP) Phase 1 (2007–2012) Final Draft, PMO-RALG, Dec. 2007
[7] Conversion rate for USD 1 was equivalent to Tsh 1,278 as of December, 2007.

in Table 2-2 that describes the planned annual allocation of the LGTP budget, maintenance activities were obviously a priority in the programme.

Table 2-2: Overall LGTP Budget Requirements Estimated in 2007

Unit: Million USD

	2007/08	2008/09	2009/10	2010/11	2011/12	Planned Cost
Maintenance	51.72	54.96	58.03	58.93	62.81	**286.45**
Development	9.54	18.30	28.63	35.67	38.80	**130.94**
Capacity Building	3.42	3.40	2.85	2.60	2.15	**14.43**
TOTAL	**64.68**	**76.66**	**89.51**	**97.19**	**103.76**	**431.81**

Source: Local Government Transport Programme (LGTP) Phase 1 (2007–2012) Final Draft, PMO-RALG, Dec. 2007

As shown in Table 2-3, however, the actual budgets allocated for the LGTP in the last three years are much lower than the requirements originally estimated in 2007 (i.e., 2.8%–28.0% of the planned amount). Moreover, no budget was allocated in the current financial year 2011/12, although the program budget had originally been supposed to increase every year. This is because development partners have ceased to finance the programme as described later in section 6.2.2. Table 2-3 also shows that actual disbursements for road works were quite low in 2008/09 and 2010/11. Note that Village Travel and Transport Programme (VTTP) in Table 2-3 focuses on unclassified roads at community levels.

Table 2-3: Approved Budgets and Disbursements for the LGTP

Unit: Million Tsh

	Institutional Support/ Capacity Building (PMO-RALG)		Road Works (LGAs)		VTTP (LGAs)		Total	
FY	**Budget**	**Disb.**	**Budget**	**Disb.**	**Budget**	**Disb.**	**Budget**	**Disb.**
2008/09	6,389	4,149	19,213	4,523	1,865	1,097	27,467	9,769
2009/10	1,706	1,706	24,765	14,565	1,655	845	28,126	17,116
2010/11	769	769	2,692	2,400	0	0	3,461	3,169

Source: 5th Joint Infrastructure Sector Review Meeting Roads under Local Government Authorities, PMO-RALG, Oct. 2011

Table 2-4: LGTP Physical Performance of Road Works

FY	Carriageway Improvement	Side Drainage Improvement	Bridges	Drifts	Box Culverts	Culverts
	Km	**Km**	**No**	**No**	**No**	**No**
2008/09	750	285	26	33	28	340
2009/10	658	252	19	38	38	315
2010/11	342	150	11	6	2	14
TOTAL	**1,750**	**687**	**56**	**77**	**68**	**802**

Source: 5th Joint Infrastructure Sector Review Meeting Roads under Local Government Authorities, PMO-RALG, Oct. 2011

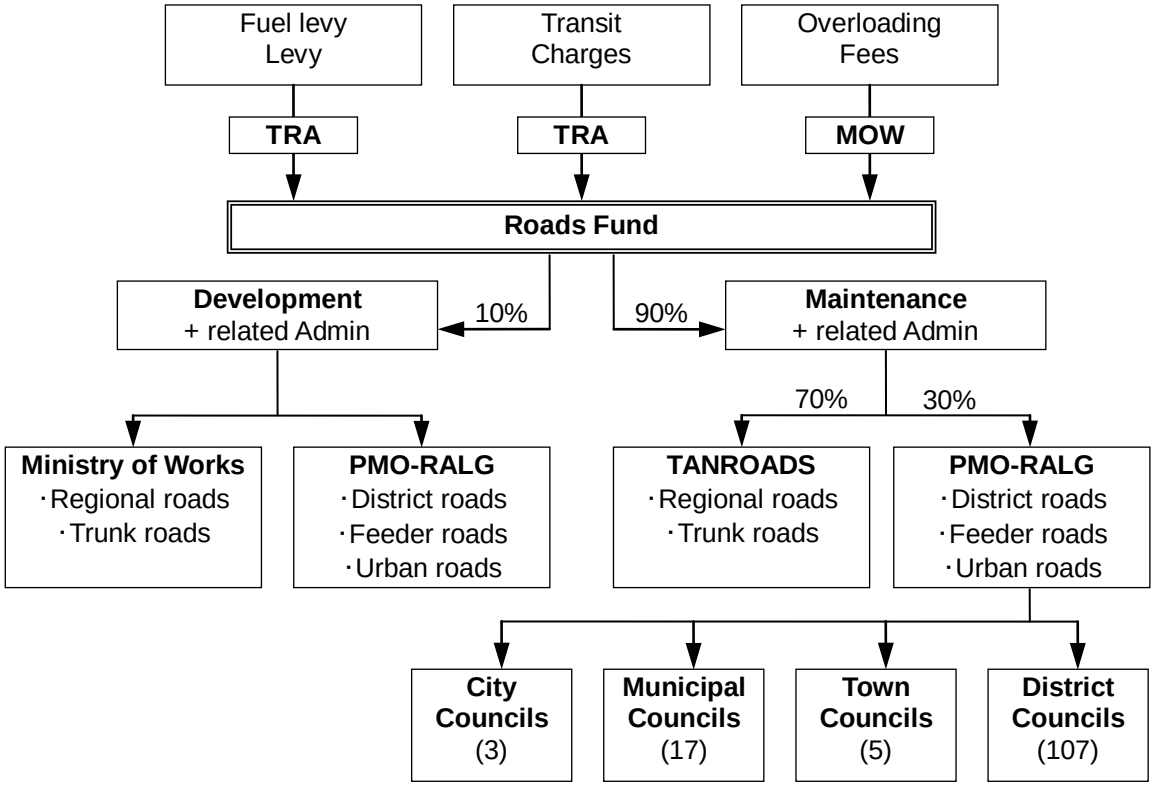
2.3.3 Roads Fund

(1) Background

The Roads Fund was established in 1991 for the purpose of providing an adequate and stable funding for road works. The Roads Fund Board (RFB) was established for the management of the Roads Fund based on the Statutory Instrument No. 11 of 1998 under the Roads Tolls (Amendment) (No.2) Act of 1998. The RFB came into operation in 2000 and has provided the

implementing agencies with necessary funding as well as advising and monitoring in technical and financial aspects.

Sources of the Fund include fuel levy, transit charges and overloading fees. The collected fund is allocated to the implementing agencies by purpose following the proportion as shown in Figure 2-4. In principle, the RFB allocates 90% (or more) of total funding for road maintenance and 10% (or less) for development. Besides, emergency funds are set aside and used as necessary. After deducting the administration cost of the Board, TANROADS (and the Ministry of Works) receives 70% of the fund for trunk and regional roads, and PMO-RALG provided 30% for classified rural roads.



Source: Corporate Information, Roads Fund Board

Figure 2-4: Budget Allocation of Roads Fund

(2) Funding Process

The budgeting schedule for the Roads Fund also corresponds to that for the government budget. LGAs as implementing agencies prepare annual road maintenance programmes for budget request based on their road inventories. The programmes indicate planned activities, subject road sections and work schedule for the next financial year. The estimated budgets prepared by LGAs are submitted to PMO-RALG, and forwarded to the RFB after consolidation.

The RFB reviews the budget proposal and adjusts it within the revenue to be collected by Tanzania Revenue Authority (TRA) and the Ministry of Works (MOW). After the Roads Fund budget is approved by the Parliament, the RFB and PMO-RALG enter into an Annual Performance Agreement which specifies the approved road works in the year. Then, every LGA signs a separate Annual Performance Agreement with PMO-RALG for its own programme.

Based on the agreements, the funds are disbursed directly to each council's Roads Fund account on a monthly basis[8].

Table 2-5 shows the actual disbursement dates of the Fund that vary somewhat in each year. This is because the first release depends on the Parliament's approval and administrative procedures for funds transfer from TRA (and MOW). As shown in the table, the final releases were made by the end of the financial year in 2009/10 and 2010/11.

Table 2-5: Dates of First and Last Disbursement of the Roads Fund

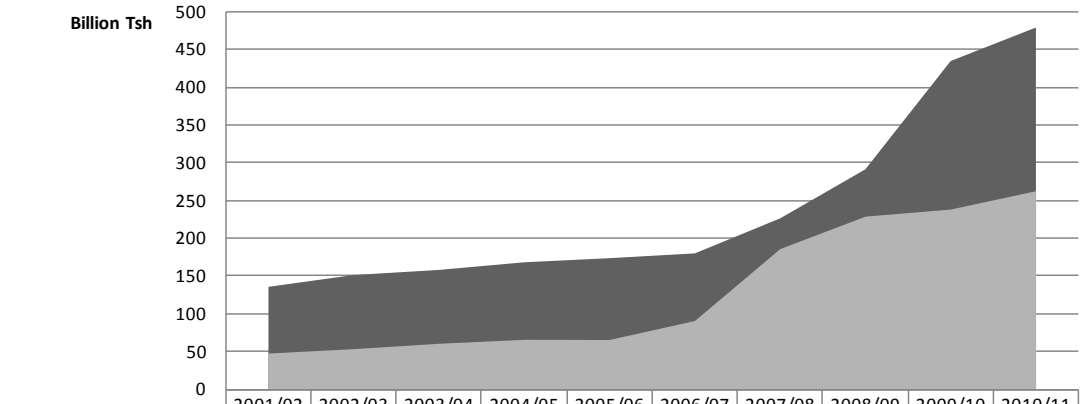
	2008/09	2009/10	2010/11
First Disbursement Date	19/08/2008	16/07/2009	24/09/2010
Last Disbursement Date	15/07/2009	21/06/2010	30/06/2011

Source: Paper on Road Financing Performance (Final Draft) for the 5th Joint Infrastructure Sector Review in Transport, Roads Fund Board, Sept. 2011

The executed Roads Fund budgets are reviewed and monitored with the established system of the RFB. Quarterly progress reports are prepared by the implementing agencies in order to assess the expenditure and the physical performance. In addition, the RFB conducts technical and financial audits[9] of the fund as a monitoring activity by hiring consultants. Through the monitoring activities, performance indicators are reviewed which are specified in the Performance Agreement.

(3) Performance

The Roads Fund covers 55% of the total road maintenance needs in the last two financial years as shown in Figure 2-5. The disbursed amount of the Fund doubled in 2007/08 compared with the previous year, which was due to the increase in fuel levy that contributes more than 95% of the Fund's revenue. It is not entirely clear why the maintenance needs also increased significantly over the past few years; obviously the rise of this extent can never be explained by the inflation alone. The increased availability of the fund may have induced relevant agencies including LGAs to demand higher levels of budget for road maintenance.



	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Maintenance Need	135.64	151.3	158.08	168.2	173.66	180	226.4	291.5	435.1	479.56
Funds for Disbursement	47.05	52.86	59.99	65.22	65.02	90.15	185.36	228.33	237.73	262.03

Source: JICA Survey Team based on the Paper on Road Financing Performance (Final Draft) for the 5th Joint Infrastructure Sector Review in Transport, Roads Fund Board, Sept. 2011

Figure 2-5: Comparison between Maintenance Needs and Disbursement

[8] Disbursements to the RS are on a quarterly basis for costs of administration, supervision and monitoring.
[9] Technical audit manual was developed with the assistance of JICA.

The recent performance of the Road Fund budget for rural road works is summarized in Table 2-6 and Table 2-7. Table 2-6 shows that actual implementation accounts for approximately 60% of the planned budget at the end of each FY.

Table 2-6: Disbursed Amount of the Road Fund for Rural Road Works at the End of FY

Unit: Million Tsh

	2008/09	2009/10	2010/11
Planned Maintenance	**53,891**	**71,873**	**72,176**
Implemented Maintenance	**35,320**	**46,017**	**42,869**
Routine Maintenance	8,641	-	10,827
Spot Maintenance	8,830	-	9,533
Periodic Maintenance	13,457	-	15,140
Bridges, Drifts, Culverts	2,474	-	4,806
Supervision	1,918	-	2,563
Implemented Development	**5,298**	**8,450**	**8,525**

Source: JICA Survey Team based on 5th Joint Infrastructure Sector Review Meeting Roads under Local Government Authorities, PMO-RALG, Oct. 2011

Table 2-7: Physical Performance of the Road Fund for Rural Road Works

Unit: Km

	2008/09	2009/10	2010/11
Planned Maintenance	**31,131**	**29,100**	**28,850**
Implemented Maintenance	**17,139**	**17,519**	**16,177**
Routine Maintenance	11,167	-	10,972
Spot Maintenance	4,831	-	3,861
Periodic Maintenance	1,141	-	1,342
Implemented Rehabilitation	**58**	**185**	**221**
Developed Bridges (Unit: No)	**2**	**6**	**2**

Source: JICA Survey Team based on 5th Joint Infrastructure Sector Review Meeting Roads under Local Government Authorities, PMO-RALG, Oct. 2011

2.3.4 LGDG

(1) Background

Local Government Development Grant[10] (LGDG) has been operated nationwide since 2005/06 as part of the efforts toward decentralization. Financial decentralization was one of the core issues of the Local Government Reform Programme (LGRP) launched in 1999. This LGDG system is designed as discretionary grant for capital investment in infrastructure and service improvement. This component of LGDG is called Council Development Grant (CDG). LGDG consists of CDG, Capacity Building Grant (CBG) and sector specific grants[11].

This grant system also aimed at harmonising a number of area-based programmes and streamlining the flow of funds provided for LGAs. Currently, LGDG is funded by the Government of Tanzania and a group of development partners under the Common Basket Fund. Steering and Technical Committees are in charge of achieving efficient operation of the system.

[10] It was known as Local Government Capital Development Grant (LGCDG) until 2008.
[11] Sector specific grants cover capital investment and capacity development of agriculture, health and water sectors (FY 2010/11).

(2) Financial Flow

Prior to planning and budgeting, LGAs are subject to annual assessment of Performance Measures in the previous financial year, which is scheduled in September–October. The allocation of the next year depends on the result of the assessment and the indicators in the predetermined formula (i.e., population, poverty and capped land area). If an LGA does not satisfy any of the Minimum Conditions of the system, such LGA is not entitled to receive full amount of the grant. Proposed budgets are reviewed by the Steering Committee and released from the basket fund after approval.

After implementation of the planned activities, LGAs are required to report financial and physical progress on a quarterly basis following the normal reporting process of the government. Audit and evaluation exercises are also required to monitor the achievement of the financed activities.

(3) Performance

The total allocation for LGDG has increased as shown in Figure 2-6. Among the items in the figure, "Core CDG" can be applied to discretionary capital investment including road works. On average, approximately half of this item is allocated to education (primary and secondary), 12%–20% to health, 8% to road, and 2% to agriculture and water. These allocations depend on the availability of other sector-specific budgets.

This LGDG budget is released from the basket fund financed by the Government of Tanzania, the World Bank and bilateral development partners including Japan.

Source: JICA Survey Team based on Annual Assessment for Council Development Grants and Capacity Building Grants for FY 2008/2009–2010/2011 under the Local Government Development Grant (LGDG) System, PMO-RALG, 2008–2010

Figure 2-6: Budget Allocation of LGDG

2.3.5 Others

The funds for rural road development/maintenance can be expended also from several financial sources primarily targeting other sectors. Although these are not a major source of funds for rural roads in terms of the amount, they can be used for rural roads development and maintenance as part of the associated social and economic activities.

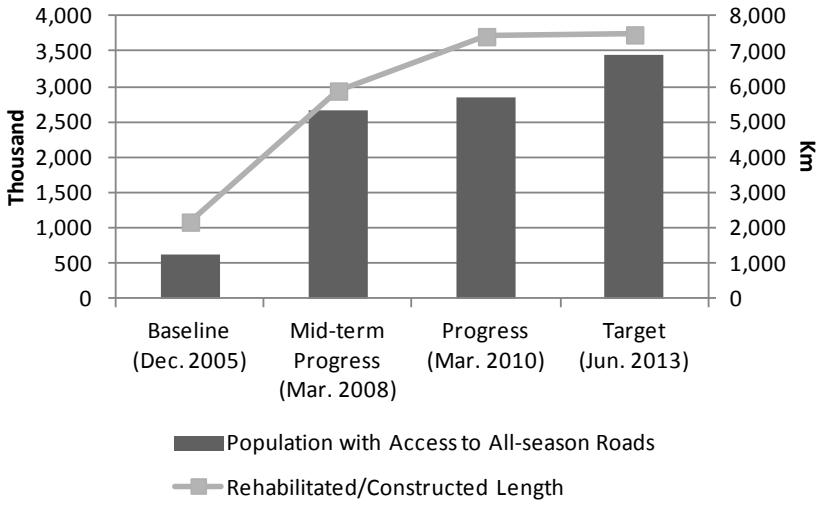
(1) TASAF[12]

Tanzania Social Action Fund (TASAF) was established in 2000 to improve access to socio-economic services and income generating opportunities by supporting small-scale development projects at a community level. During phase 2, the coverage of TASAF has expanded to all LGAs since 2005. The fund is now going into phase 3.

The National Village Fund is a main component of TASAF, which finances multi-sector investment projects (sub-projects) for communities. The sub-projects are proposed and managed with a community-based approach. Candidate projects identified at a community level are appraised by Village Councils or LGAs, and projects satisfying certain criteria are financed by the TASAF Management Unit after the National Steering Committee provides endorsement.

The total allocation for TASAF II amounts approximately to Tsh 300 billion, which is funded mainly by IDA (both credit and grant) and partly by the Government of Tanzania and some other sources. A sub-project under TASAF can be provided up to USD 45,000[13]. As an operational principle of the fund, subject communities are required to contribute at least 15% (in cash and/or in kind) of the total sub-project costs[14]. The use of labour-based technology is promoted by paying at least 50% of the sub-project funds for unskilled labour wages.

TASAF can be utilized for road projects though it targets sub-projects in wider areas. According to a TASAF progress report, the fund has contributed significantly to the improvement of access to roads by community people (Figure 2-7). In terms of the affected population, road improvements made the second largest contribution (almost 15%) among all of the sub-projects of TASAF.



Source: JICA Survey Team based on Third Quarter Implementation Progress Report (January–March 2010), TASAF Management Unit

Figure 2-7: Performance Monitoring Results of TASAF II

[12] TASAF II Project Operational Manual (Draft Revised), Government Project Preparation Team, July 2009
[13] The amount varies depending on approval authorities (Village Council or LGA) and the extent to address Millennium Development Goals.
[14] This percentage is not applied to sub-projects related to vulnerable groups and water activities. Local material and labour are counted as the contribution.

(2) ASDP

Agriculture Sector Development Programme (ASDP) aims to realize enabling environment for increasing productivity and profitability of the agricultural sector and to achieve poverty reduction and food security. ASDP consists of three sub-programmes: 75% of the total funding is allocated to the support and the implementation at a LGA or field level; 20% is for the support at a national level; and the rest is for cross-cutting issues including the improvement of rural infrastructure. In the first sub-programme, the highest priority is put on the investment for raising agricultural productivity with 70-80% of the sub-programme budget being used.

The main source of funding for ASDP is the District Agricultural Development Grant (DADG), which is set in the LGDG framework. This fund can be used for construction and rehabilitation of infrastructure including feeder roads or paths as long as there is a rationale that the investment contributes to increasing agricultural performance. However, there is no specific allocation reserved for road projects, which depends on the planning by LGAs.

3. Status of Rural Road Management by Local Governments

3.1 Outline of Survey

3.1.1 Survey Area

JICA Survey Team selected four regions (Dodoma, Mbeya, Iringa, and Mwanza) as the survey target areas, having the following regional features:

- Mbeya
  ATTI (Appropriate Technology Training Institute) is located in this region. ATTI had served as counterpart in JICA project "The Project for Capacity Strengthening of LBT Training at ATTI."
- Iringa and Dodoma
  Large-scale training programs of the above JICA project had been implemented in this region.
- Mwanza
  LBT works are considered to be conducted in this region.

Targeted District Councils in each region were chosen in order to avoid the same areas included in the previous JICA survey "Detailed Planning Survey for Rural Roads Maintenance System Development Project." Question items were compiled through development of the previous survey results in order to collect revised and new data which would contribute to making the mid-term assistance plan in the road sector.

Interviewed District Councils and the reasons for selection are described in Table 3-1.

The JICA Survey Team also interviewed TANROADS regional offices in order to refer to TANROADS' management method, although TANROADS isn't responsible for rural road management.

Table 3-1: Interviewed District Councils

Region	Previous Survey	This Survey	Reasons for Selection
Dodoma	Bahi	Chamwino	Near from the Regional Capital to develop programs easily
Iringa	Mufindi Iringa DC	Njombe	Developed road network more than others except Mufindi and Iringa
Mbeya	Mbozi	Mbeya Rural	Near from the Regional Capital to develop programs easily
Mwanza	n/a	Magu	Near from the Regional Capital to develop programs easily Developed road network relatively Less erosion than others

3.1.2 Question Items

Question items are shown below. The JICA Survey Team interviewed local governments in accordance with questionnaires which were composed of these items.

- Human Resources
  The number and experience of personnel in charge of the road management
  Status of capacity building

- Inventory Management
  Status of inventory management (frequency and number of surveyors, usage of inventory)
- Planning of Road Development/Maintenance
  Annual schedule of planning for road development/maintenance
  Required documents, practitioners, decision makers, and influence out of LGA
- Budgetary Procedure
  Annual schedule of budget request, allocation, and absorption
  Required documents, budgetary sources
- Procurement Procedure
  Schedule of procurement and share of road works
- Supervision of Works
  Usage of consultants, frequency of site check, quality control management
- Intention for LBT Works (cf. page5-1)
  Share of LBT works, issues on implementation of LBT

3.2 Findings in Dodoma Region

Dodoma is the legal capital of Tanzania and PMO-RALG is located in this region. A road network (east to Dar es Salaam through Morogoro and west to Kigoma or Mwanza through Tabora) is well established. The climate of the region is dry because of short rainy seasons.

Chamwino District Council is located east of previous Dodoma Rural Distinct. It is near the regional capital and more advanced politically and economically like Bahi District Council.

3.2.1 Rural Road Management under Chamwino District Council

(1) Human Resources

There were three engineers, three technicians, and one quantity surveyor, but no assistant. They had five to twenty years of experience. Four of them have been certificated by ATTI. They didn't participate in other trainings for capacity building.

The District Council continued employing elderly personnel due to lack of personnel, but didn't utilize outsourcing.

(2) Inventory Management

The survey on road conditions was conducted annually, and inventory was updated every three years. The number of surveyors was six supported by the building sector. Three teams consisting of two surveyors implemented the survey.

Inventory was not readily available. There were some discrepancies found in the road condition data compared to the ones provided by RS Engineer.

Table 3-2: Road Network Lengths under Chamwino District Council

Unit: kilometer

	Paved	Unpaved	Total
District Road	0.0	114.5	114.5
Urban Road	0.0	0.0	0.0
Feeder Road	0.0	527.6	527.6
Total	0.0 (0.0%)	642.1 (100.0%)	642.1

Source: JICA Survey Team based on interviews

(3) Planning of Road Development/Maintenance

The District Council engineer was responsible for planning of road development/maintenance. Annual budgetary planning was made based on the ceiling informed by PMO-RALG in February, and approved by Council consisting of 45 members, resulting in the difficulty of consensus building.

Inventory and the ceiling were used for the detailed planning. Detailed planning was made quarterly in accordance with the budget allocation from PMO-RALG. Estimation of detailed planning was made based on the market prices.

(4) Budgetary Procedure

The budget was calculated based on the ceiling informed by PMO-RALG in February, and had to be approved by the Council by April. After the Parliament's approval in June, the first quarter budget was allocated to the District Council in August.

Because the budget was quarterly allocated from PMO-RALG, tenders of works were also quarterly issued except for the first quarter. An average period of works was three months, and the payment to the contractors was made within 28 days after a 7-day inspection.

(5) Procurement Procedure

The procurement procedure followed PPRA (Public Procurement Regulatory Authority) rules. All contracts were small (Tsh 10–200 million), and road works were procured under the open tender system.

The number of participants per tender was eleven on average. There was no tender with no participants. The lowest-priced bidder was financially and technically qualified for the contract negotiation. It generally took two months from public notice to reaching an agreement.
The District Council does not conduct the force account road works nor possessed machinery. They procured everything for road works from the market.

(6) Supervision of Works

Frequency of site check was once a week. District personnel confirmed the progress by mobile phone. Consultants were not utilized.

Heavy rain affects road works as well as lack of water in dry seasons. Thus tenders were issued regardless of season because it was facing severe conditions all year around.

Tests for quality control were conducted at TANROADS' laboratory if requested from contractors. The defect liability period was six to twelve months depending on the nature of works.

3.2.2 Trunk/Regional Road Management under TANROADS-Dodoma

(1) Human Resources

There were nine engineers (five full-time and four part-time) and eight technicians. Full-time engineers had 10–20 years of experience. TANROADS employed the consultants for construction supervision of three projects.

(2) Inventory Management

The survey on road conditions was conducted twice a year, and the inventory was also updated twice a year. The number of surveyors was four: a planning unit engineer and three technicians.

Table 3-3: Road Network Lengths under TANROADS-Dodoma

Unit: kilometer

	Paved	Unpaved	Total
Trunk Road	200.5	353.9	554.4
Regional Road	13.8	1105.4	1,119.2
Total	214.3 (12.8%)	1,459.3 (87.2%)	1,673.6

Source: JICA Survey Team based on interviews

(3) Procurement Procedure

Procurement procedure followed PPRA (Public Procurement Regulatory Authority) rules. Most of tenders were issued in July and August. There were few tenders in which CRB (Contractors Registration Board) Class 6 to 7 contractors could participate. Works except spot improvement were stopped in rainy seasons.

Cost estimates are made for each tender. If the lowest bid was higher than the estimated price or no contractor participated in the tender, the tender was repeated after conditions were changed. It generally takes one month from public notice to reaching an agreement.

TANROADS-Dodoma is not directly involved in the force account works, but owns machines (motor grader, dump truck, mini excavator, crane truck, etc.) which were given from development partners. These machines are maintained by TEMESA within the same yard.

(4) Supervision of Works

Consultants for supervision were utilized in large-scale works (development), but not in general works (maintenance). Frequency of site checks was every day for earthworks and pavement work, and 3–5 times per week for others.

Tests for quality control were conducted by TANROADS laboratory, which employed one engineer and one technician. The laboratory didn't have equipment for bitumen tests and chemical tests.

The defect liability period was three (maintenance) to twelve (structure) months according to nature of the works.

3.2.3 Monitoring by Dodoma Region

(1) Monitoring Budgetary Absorption

The personnel was too short staffed (only one engineer) to monitor budgetary absorption. Progress reports written by Councils often included errors.

Budget was not allocated timely from PMO-RALG to LGA Council. Lack of LGA personnel's preparation in addition made absorption delayed and less.

(2) Monitoring Quality Control

Quality control was the responsibility of the Council Engineer. The region didn't have anything to do with quality control partially because of lack of personnel.

3.3 Findings in Mbeya Region

Mbeya Region is located in the southern highlands facing the border with Zambia and Malawi. Elevation of the central city is 1,700 meters. The area has warm climate and much precipitation, and agriculture is the main business activity. Some farms have become intensive and grow high value export crops.

ATTI is located in Rungwe District in this region. Many LBT projects have been implemented within this region. Mbeya Rural District Council is located around central Mbeya, and the local economy is active.

3.3.1 Rural Road Management under Mbeya Rural District Council

(1) Human Resources

There were four engineers, two technicians, and two assistants. They had five to over ten years of experience. Four of them had been certificated by ATTI. Some personnel have other trainings conducted by colleges for capacity building.

A few more staffs were required. Because of lack of personnel, they utilized consultants in large projects for planning, documentation for tender, and procurement.

(2) Inventory Management

The survey on road conditions was conducted at random (every a few years), and the latest inventory was as of April 2011.

Table 3-4: Road Network Lengths under Rural Mbeya District Council

Unit: kilometer

	Paved	Unpaved	Total
District Road	67.0	294.0	361.0
Urban Road	4.0	6.6	10.6
Feeder Road	0.0	709.6	709.6
Total	71.0 (6.6%)	1,010.2 (93.4%)	1,081.2

Source: JICA Survey Team based on interviews

Table 3-5: Road Conditions under Rural Mbeya District Council

Unit: kilometer

	Good	Fair	Poor	Total
District Road	262.0	13.0	50.0	325.0
Urban Road	1.1	4.9	0.9	6.9
Feeder Road	161.1	223.7	303.5	688.3
Total	423.1 (41.5%)	236.7 (23.2%)	353.5 (34.7%)	1,020.2

Source: JICA Survey Team based on interviews

(3) Planning of Road Development/Maintenance

The District Council engineer was responsible for planning of road development/maintenance. Planning was required for approval by Council. The approved planning was not possible to be changed by region.

Inventory, traffic survey, and network map were used for detailed planning. There were 145 villages in the District. District personnel chose routes for works, which included 3–5 villages, with priority based on access to public service.

Estimation of detailed planning was made based on market prices by District personnel. At this time they requested quotations to suppliers and referred to TANROADS' unit prices.

They planned to conduct works without machinery during rainy seasons.

(4) Budgetary Procedure

Similarly to Chamwino District, the ceiling from PMO-RALG was notified in February, and the first quarter budget was allocated to the District in August. Because the budget was quarterly allocated from PMO-RALG, tenders of works were also quarterly issued.

An average period of works was three months. It took two quarters from detailed planning to commencement of works, thus payment for works planned after the second quarter was usually absorbed into the next fiscal year.

(5) Procurement Procedure

Similarly to other LGAs, the procurement procedure followed PPRA (Public Procurement Regulatory Authority) rules, and road works were procured under an open tender system.

The number of participants per tender was 15–20. There was no tender with no participants. The lowest-priced bidder was financially and technically qualified for the contract negotiation. It generally took 1.5 months from public notice to reaching an agreement. If the lowest bid was higher than the budget, they negotiated with the lowest-priced bidder after conditions were changed.

The District Council does not conduct the force account road works except for emergency work and did not possess machinery. They procured everything from the market for road works except emergency works.

(6) Supervision of Works

Frequency of site checks was everyday for earth works and pavement work (lower for concrete works). Consultants were utilized for supervision in large projects.

They did not have any equipment for quality control tests. Conducting tests were requested to TANROADS laboratory which didn't hesitated to comply. The defect liability period was six months.

3.3.2 Trunk/Regional Road Management under TANROADS-Mbeya

(1) Human Resources

There were three technical divisions (Engineering, Procurement, and Equipment) under the Regional Manager, and in total, eight engineers and twenty technicians. Because TANROADS-Mbeya had a big workshop, TEP (TANROADS Equipment Pool), many technicians were employed. Division managers (engineers) had over 20 years of experience.

They were utilizing consultants for supervision in large projects.

(2) Inventory Management

The survey on road conditions was conducted every three to five years, and the latest inventory was as of November 2010. The number of surveyors was two: a planning unit engineer and a technician.

Table 3-6: Road Network Lengths under TANROADS-Mbeya

Unit: kilometer

	Paved	Unpaved	Total
Trunk Road	367.2	442.9	810.1
Regional Road	25.3	1,426.0	1,451.4
Total	392.5 (17.4%)	1,869.0 (82.6%)	2,261.5

Source: JICA Survey Team based on interviews

(3) Procurement Procedure

The procurement procedure followed PPRA (Public Procurement Regulatory Authority) rules. Large projects adopted the short list method where 3–5 contractors were prequalified. Other works adopted an open tender system. Pavement works were stopped in rainy seasons.

Cost estimates are made for each tender. They had unit prices based on achievement of previous works.

TANROADS-Mbeya does not conduct the force account road works. TEP (TANROADS Equipment Pool) owns, maintains, and hires machinery on its own. (cf. page 4-9)

(4) Supervision of Works

Consultants for supervision were utilized in large-scale works (Development), but not in general works (Maintenance). Frequency of site checks was every day for pavement and structural work, and varied depending on the nature of the works for others.

Tests for quality control were conducted by TANROADS laboratory. Because the laboratory didn't have equipment for bitumen tests, they sometimes requested tests to Mbeya Institute of Technology or University of Dar es Salaam.

The defect liability period was three (maintenance) to twelve (rehabilitation and development) months according to nature of the works.

If requested, they provided information to District personnel. Because the District Council didn't have a bridge engineer, they actually assisted bridge technical matters themselves.

3.3.3 Monitoring by Mbeya Region

(1) Monitoring Budgetary Absorption

The personnel was too short staffed (only one engineer) to monitor budgetary absorption. Information on LGA Councils was not totally communicated to region.

The regional engineer and the Council Engineers made the budget together. The regional engineer confirmed the performance on site on his own, and checked every Transport Infrastructure Master Plan issued by LGA Council at the end of fiscal year.

(2) Monitoring Quality Control

Local governments didn't have any equipment for quality control tests. Quality control management was basically responsible for contractors.

It was so troublesome to bring one sample to TANROADS laboratory or college, that the LGA personnel didn't always utilize the laboratory.

3.4 Findings in Iringa Region

Iringa Region is located in the southern highlands, and the elevation of the central city is 1,550 meters. The climate of this region is warm and wet. Agriculture and timber industries are active, thus, similar to the Mbeya Region. Large quantities of crops are transported to the other regions. Furthermore, Iringa city, which is located 500 kilometers away from Dar es Salaam, is a minor transport hub, with regular bus and trucking services to Dar es Salaam, Mbeya, Songea and Dodoma.

Because a number of LBT projects have been implemented within the region and region's mountainous terrains are unsuitable for EBT, LBT works are more popular than any other surveyed region.

Njombe District Council is located in the highlands (elevation of 2,000 m) 240 kilometers south from Iringa city. Because of its characteristics of plentiful precipitation, agriculture and timber are the main industries.

3.4.1 Rural Road Management under Njombe District Council

(1) Human Resources

There were one engineer, seven technicians, and no assistant. Two of the technicians were temporary, and were students. They had 15–20 years of experiences except for two technicians.

None of them had been certificated by ATTI but some personnel have other trainings conducted by colleges for capacity building. The engineer didn't think there was a lack of personnel because there are many capable technicians.

(2) Inventory Management

The survey on road conditions was conducted annually. All engineers and technicians were in charge of the survey.

The inventory was filed with traffic survey reports, and was readily available at all times.

Table 3-7: Road Network Lengths under Njombe District Council

Unit: kilometer

	Paved	Unpaved	Total
District Road	5.0	1,146.9	1,151.9
Urban Road	0.0	0.0	0.0
Feeder Road	0.0	343.2	343.2
Total	5.0 (0.3%)	1,490.1 (99.7%)	1,495.1

Source: JICA Survey Team based on interviews

Table 3-8: Road Conditions under Njombe District Council

Unit: kilometer

	Good	Fair	Poor	Total
District Road	53.3	97.9	1,000.7	1,151.9
Urban Road	0.0	0.0	0.0	0.0
Feeder Road	14.7	94.4	234.1	343.2
Total	68.0 (4.5%)	192.3 (12.9%)	1,234.8 (82.6%)	1,495.1

Source: JICA Survey Team based on interviews

(3) Planning of Road Development/Maintenance

The District Council engineer was responsible for planning of road development/maintenance. Planning was required for approval by Council. The planning was not possible to be changed by Council or region.

Inventory, traffic survey, and last year's achievement were used for the detailed planning. There were 151 villages in the District. Villages requested works through O&OD (Opportunities and Obstacles to Development). After District personnel checked the requests on site, he chose routes for works, which included about 5 villages, with priority based on access to public service.

Estimation of detailed planning was made based on the market prices by District personnel. Because of lack of suppliers, TEP's unit prices were very useful. They obtained information on bridge engineering and unit price for works. They planned to utilize TANROADS's machinery or equipment if TANROADS was implementing works in the area.

The rainy season continues from November to March. They didn't conduct works except concrete works during the rainy season. They arranged the schedule so that the defect liability period except concrete works did not coincide with the rainy season.

(4) Budgetary Procedure

The budget was allocated in November (4th month) at first. As mentioned above, the rainy season is from November to March, and most works except bridgework were to commence after April. The budget was usually absorbed by next October. Delay of budget allocation made payment to contractors and detailed planning also delayed.

Unit prices on which PMO-RALG decide the ceiling were made uniform nationwide and were not adjusted for a few years while fuel prices had been increasing. District Council's estimation for works took price increase into account; thus the council made an agreement with contractors with less scope of works.

District personnel wouldn't request more budget than the ceiling, but a budget three to four times that of the ceiling would be required.

(5) Procurement Procedure

Similarly to other Districts, the procurement procedure followed PPRA (Public Procurement Regulatory Authority) rules, and road works were procured under an open tender system.

The number of participants per tender could be as high as 10, but 3–5 on average. There were some participants from out of the region. The lowest-priced bidder was financially and technically qualified for the contract negotiation. It generally takes a little less than two months from public notice to reaching an agreement. If the lowest bid was higher than the budget, they negotiated with the lowest-priced bidder after the conditions were changed.

The District Council does not conduct the force account road works nor possessed machinery. They procured everything for road works from the market.

(6) Supervision of Works

Frequency of site checks was every day for structure and 2–3 days per week for earth works. Consultants were not utilized for supervision. Roads Fund didn't include the consultant fee.

They didn't have any equipment for quality control tests. Tests were requested to TANROADS laboratory with no more than one week notice. The defect liability period was three months for earth works and six months for structures.

3.4.2 Trunk/Regional Road Management under TANROADS-Iringa

(1) Human Resources

There were three technical divisions (Engineering, Procurement, and Planning) under the Regional Manager and in total, eight engineers. All engineers had over 15 years of experience.

They were utilizing consultants for supervision in large projects.

(2) Inventory Management

The survey on road conditions was conducted every three years, and the latest inventory was as of July 2011. The number of surveyors was four: two planning unit engineers and two assistants.

Table 3-9: Road Network Lengths under TANROADS-Iringa

Unit: kilometer

	Paved	Unpaved	Total
Trunk Road	479.0	85.0	564.0
Regional Road	31.0	1,223.0	1,254.0
Total	510.0 (28.1%)	1,308.0 (71.9%)	1,818.0

Source: JICA Survey Team based on interviews

(3) Procurement Procedure

Procurement procedure followed PPRA (Public Procurement Regulatory Authority) rules. Large projects adopted the short list method where 5 contractors (4 contractors for bridge works) were prequalified. Other works adopted the open tender system. Their tenders included maintenance works for Class 7 and LBT Class contractors. There were up to twenty participants in one open tender. The more distant the site was, fewer contractors participated. Emergency works and drainage works were conducted in rainy seasons.

Cost estimates are made for each tender. They had unit prices based on achievement of previous works.

They do not conduct the force account road works nor possessed machinery, and have no intention to possess machinery in the future.

(4) Supervision of Works

Domestic consultants for supervision were utilized in large-scale works (Development), but not in general works (Maintenance). Frequency of site checks by consultants or technicians was half of the period in total. Site checks by engineers were conducted once a week. Because distance between sites was long, continuous site checks were difficult.

Tests for quality control were conducted by TANROADS laboratory. Although the laboratory did not have enough equipment, TANROADS headquarters could arrange to utilize idle equipment of each region's laboratory for TANROADS regional offices.

The defect liability period was three (maintenance) to twelve (structure and upgrade) months according to nature of works.

If requested, they provided information to District Council engineers.

3.4.3 Monitoring by Iringa Region

(1) Monitoring Budgetary Absorption

The personnel was too short staffed (one engineer and one technician) to monitor budgetary absorption. The personnel confirmed the performance on site on their own every three months, and checked every Transport Infrastructure Master Plan issued by LGA Council at the end of the fiscal year.

Intensive budget allocation would be supposed to improve development works in order to keep good conditions with only maintenance.

(2) Monitoring Quality Control

Local governments didn't have any equipment for quality control tests. It was so troublesome to bring one sample to TANROADS laboratory that Council engineers didn't always utilize the laboratory. Thus, visual inspection was mainly implemented.

The engineer recognized that the scheme should have been required which would have improved LGA personnel's supervision capability and would have had capable contractors entering tenders.

3.5 Findings in Mwanza Region

Mwanza Region is located in the northwestern highlands facing Lake Victoria, and the elevation of the central city is 1,100 meters. Mwanza is the second largest city, and industries are active around urban area. But the damage to agriculture due to floods and droughts is serious, and erosion is also crucial. Thus, natural conditions are tough; a large flood struck the area last year.

Development partners have implemented LBT projects within the region, and the budget limited to LBT was allocated more than the other interviewed areas.

Magu District Council is located 70 kilometers east of Mwanza City. Agriculture is the main business.

3.5.1 Rural Road Management under Magu District Council

(1) Human Resources

There were five engineers, four technicians, and three assistants. They had 5–20 years of experience.

None of them had been certificated by ATTI but some personnel have other trainings conducted by colleges (in Dar es Salaam and Mbeya) for capacity building. They had enough personnel at that time. But this District was planned to be separated into two Districts next year in accordance with division of region.

(2) Inventory Management

The survey on road conditions seemed to be conducted every year, but the latest inventory was as of April 2010. The number of surveyors was small.

Table 3-10: Road Network Lengths under Magu District Council

Unit: kilometer

	Paved	Unpaved	Total
District Road	0.0	339.6	339.6
Urban Road	0.0	0.0	0.0
Feeder Road	0.0	337.2	337.2
Total	0.0 (0.0%)	676.8 (100.0%)	676.8

Source: JICA Survey Team based on interviews

Table 3-11: Road Conditions under Magu District Council

Unit: kilometer

	Good	Fair	Poor	Total
District Road	20.9	72.6	246.1	339.6
Urban Road	0.0	0.0	0.0	0.0
Feeder Road	20.6	174.0	142.6	337.2
Total	41.5 (6.1%)	246.6 (36.4%)	388.7 (57.4%)	676.8

Source: JICA Survey Team based on interviews

(3) Planning of Road Development/Maintenance

The District Council engineer was responsible for planning of road development/maintenance. Planning was required for approval by Council.

Inventory, demographics, and information on socioeconomic activities were used for the detailed planning. There were 122 villages in the District. They chose routes for works, which included 2–3 villages, with priority based on access to public service.

Estimation of detailed planning was made based on market prices or similar works' prices by District personnel.

The heavy rainy season continues from February to May. They didn't conduct any works during two months of the season.

(4) Budgetary Procedure

The budget request procedure was the same as other interviewed District Councils. The budget was allocated during the second quarter at first, and every three months after that. Thus payment to contractors was always delayed.

(5) Procurement Procedure

Similarly to other LGAs, Procurement procedure followed PPRA (Public Procurement Regulatory Authority) rules, and road works were procured under the open tender system.

If the number of participants per tender was fewer than three, the tender was voided and a revised tender was issued. Most of participants were located in Mwanza City. It generally takes around 1.5 months from public notice to reaching an agreement.

The District Council does not conduct the force account road works nor possessed machinery. They procured everything for road works from the market.

Some contractors were supposedly also engaged in agriculture or retail because of lack of construction works.

(6) Supervision of Works

They frequently conducted site checks. Consultants were not utilized for supervision.

District Council didn't have any equipment for quality control tests but tests were implemented by District personnel. The defect liability period was six months.

3.5.2 Trunk/Regional Road Management under TANROADS-Mwanza

(1) Human Resources

There were three technical divisions (Maintenance, Procurement, and Planning) under the Regional Manager, and in total six engineers and eight technicians and one assistant.

They were utilizing consultants for supervision in large projects.

(2) Inventory Management

The survey on road conditions was conducted every year, and the latest inventory was as of July 2011. The number of surveyors was three: one planning unit engineer and two technicians.

Table 3-12: Road Network Lengths under TANROADS-Mwanza

Unit: kilometer

	Paved	Unpaved	Total
Trunk Road	371.6	33.3	405.0
Regional Road	17.5	1,117.0	1,134.5
Total	389.1 (25.3%)	1,150.3 (74.7%)	1,539.4

Source: JICA Survey Team based on interviews

(3) Procurement Procedure

As other TANROADS regional offices, the procurement was conducted using two procedures. Large projects adopted the short list method where 3–5 contractors were prequalified. Other works adopted the open tender method. There were 10–30 participants in one open tender. Their tenders were aimed for CRB Class 1–4. The scope of each contract was defined by TANROADS headquarters.

They estimated each work. They had unit prices based on achievement of previous works.

They do not conduct the force account road works nor possessed machinery except one dump truck (for emergency). Ministry of Works and TANROADS headquarter supposedly had no intention to own them in the future.

(4) Supervision of Works

Domestic consultants for supervision were utilized in large scale works (Development), but not in general works (Maintenance). They conducted site checks every day.
Tests for quality control were conducted by TANROADS laboratory. Although the laboratory didn't have equipment for bitumen tests, the laboratory was large enough to conduct inspection for other TANROADS regional offices around Mwanza.

The defect liability period was one (maintenance) to twelve (structure) months according to the nature of works.

If requested, they provided information to Council engineers.

3.5.3 Monitoring by Mwanza Region

(1) Monitoring Budgetary Absorption

The regional engineer checked all LGAs' progress reports every three months and all Transport Infrastructure Master Plans issued by LGA Council at the end of the fiscal year.

(2) Monitoring Quality Control

Local governments had no budget for quality control test equipment. They were partially dependent on TANROADS laboratory for tests, but visual inspection was mainly implemented.

3.6 Findings – Similarities and Differences

Decentralization, where LGA Councils play a central role, is promoted under PMO-RALG. Some findings are different at a practical level due to natural conditions, experience assisted by development partners, etc. In addition, the Council Engineer, who is responsible for the rural roads management and is transferred to other LGAs (including out of region) at regular intervals, supposedly has much influence on performance of the road management.

(1) Human Resources

- Similarities: capacity building though training at college
- Differences: number of engineers, usage of consultants

(2) Inventory Management

- Similarities: nothing in particular
- Differences: usage of inventory, frequency of updating (not dependent on performance)

(3) Planning of Road development/maintenance

- Similarities: limitation by ceiling, troublesome arrangement among Councils, usage of market prices
- Differences: site visit at the planning stage

(4) Budgetary Procedure

- Similarities: procedure with PMO-RALG, delay of absorption (resigned from the beginning)
- Differences: first allocation time (at second quarter in distant LGAs from the regional capital)

(5) Procurement Procedure

- Similarities: not involved into the road works nor possessing machinery, following PPRA procedure
- Differences: accounting for rainy seasons, procurement periods (1.5–2 months)

(6) Supervision of Works

- Similarities: inadequate quality control tests (partially due to lack of equipment)
- Differences: frequency of site checks, the defect liability period

4. Status of Contractors and Machinery/Equipment for Rural Road Works in Rural Areas

4.1 Survey on Contractors in Rural Areas

4.1.1 Outline of Survey

(1) Situation of the construction industry in Tanzania

According to a report (The Economic Survey 2009) issued by the Government of Tanzania, the Gross Domestic Product (2009) in the construction sector is Tsh 2,233,885 million[15] (around USD 1,400 million), accounting for 7.9%. The number of contractors is over 6,700, of which 2,600 contractors exclusively engage in civil works. All contractors doing business in Tanzania need to register with CRB (Contractors Registration Board), which is a public institution under the Ministry of Works.

(2) Methodology

The JICA Survey Team interviewed eleven contractors in four regions. Interviewees (contractors) were mainly chosen among CRB Civil Class 5 contractors because the rural roads development/maintenance is largely owed to contractors below Class 5. But as mentioned hereunder, because of lack of machinery, these lower class contractors have close relations with the higher class contractors for the purpose of renting the machinery. Hence, interviewees included the higher class contractors who are not directly engaged in rural road works.

When JICA Survey Team chose the interviewees, a member of CATA (Contractors Association of Tanzania), who were introduced by a Japanese engineer with long-term experience and wide connections in Tanzania, assisted in contacting the local contractors through CATA's regional office managers.

Interviews were mainly conducted on Saturdays because many directors of local contractors were busy on weekdays, supervising works on their own at work sites in and out of the region.

(3) Outline of interviewees

Outline of interviewees is shown below. Two to three contractors were selected in each of the four regions.

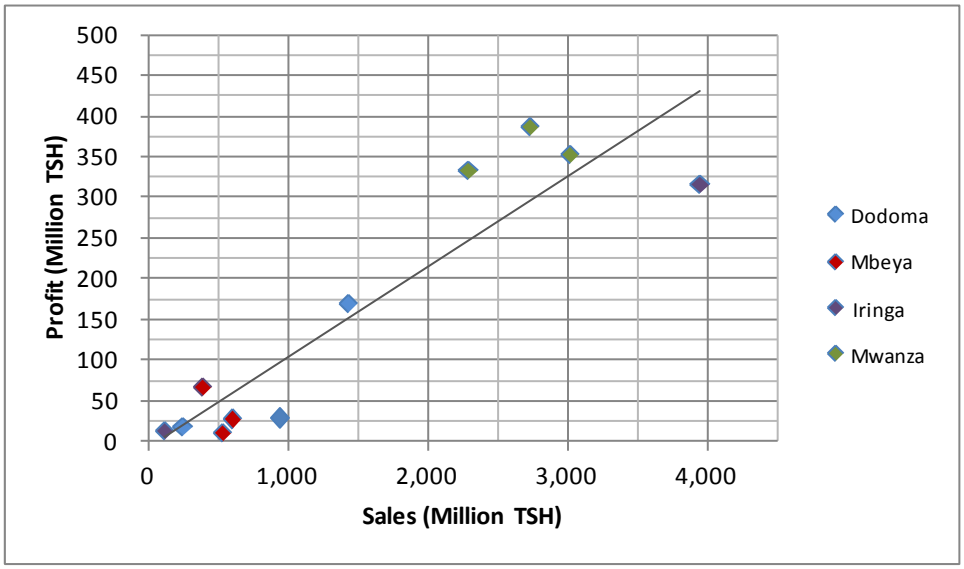
[15] The Economic Survey 2009, The Ministry of Finance and Economic Affairs, Jun.2010

Table 4-1: Outline of Interviewed Contractors

Region	Name	CBR Class Civil	Foundation Year	Capital*1 (*10^6 TSH)	Sales*1 (*10^6 TSH)	Profit*1 (*10^6 TSH)	the Number of Human Resource		Ownership of Machine*2	LBT Experience	
							Engineer	Technician		ATTI Training	Works
Dodoma	Kijima Construction Company	5	1992	200	250	18	1	2	No	**Yes**	**Yes**
	Kwizombe Builders Ltd	5	1994	10	931	29	1	1	**Yes**	**Yes**	No
	BEK Enterprise	5	1999		1,429	170	2	3	**Yes**	**Yes**	No
Mbeya	Extreme Engineering Contractors Ltd	5	1995	180	600	27	1	2	**Yes**	No	No
	Harfre Tech Ltd	5	2002	5	530	19	1	2	No	No	No
	Judex Contractors Ltd	5	1999	100	383	67	2	3	No	No	**Yes**
Iringa	MNM Engineering Services	4	1988	2,370	3,950	316	2	3	**Yes**	No	**Yes**
	Northern DOR Engineering Ltd	6	2005	10	111	13	1	1	No	**Yes**	No ongoing
Mwanza	Mayanga Contractors	1	2001	112	2,291	334	3	6	**Yes**	No	**Yes**
	Kashere Enterprises Ltd	4	1987	140	3,015	353	2	4	**Yes**	**Yes**	**Yes**
	Satellite Contractors	5	1990	136	2,723	388	2	1	**Yes**	No	**Yes**

* 1:1US$=1,580TSH
* 2:Excluding Truck and Equipment

Source: JICA Survey Team based on interviews



Source: JICA Survey Team based on interviews

Figure 4-1: Sales and Profit of Interviewees

4.1.2 Surroundings of Contractors for Rural Road Works

Capability building of contractors engaging in rural road development/maintenance is crucial for the improvement of road conditions in rural areas. In order to build capability sustainably, the private sector should voluntarily tackle the issues foreseeing the active construction market in rural areas. Based on information collected through the interviews, marketability of future rural road construction will be examined in this report.

(1) Competition and Cooperation within an Industry

There are 2,617 civil contractors in Tanzania. Among those categorized below Civil Class 5 are 2,406, accounting for 92%. (cf. page 4-7)

Works provided by LGA Councils don't have any particular condition which excludes contractors from outside the LGA, and the contractor is selected through open tender in accordance with PPRA's procedures. If works are predicted to be profitable, many contractors including outside of Region will participate in the tender. In some cases, the number of participants can be 10-30, resulting in tough competition among contractors.

A majority of contractors for road works register not only with CRB Civil but CRB Building. According to a CATA board member, there tends to be greater business opportunities in the private sector (Building) than the public sector (Civil). It was found that building works were usually less profitable than civil works. Furthermore, registering with CBR as low class contractor is relatively easy, although CRB classifies the contractors based on criteria, i.e., number of engineers and machines, etc. Thus, many newcomers to road works will induce tougher completion once the contractors consider the road sector market more attractive.

The government of Tanzania is currently promoting joint venture (JV) as a business form between the higher and lower class national contractors in order to provide opportunities to join large scale constructions and to improve the capability of lower class contractors. This new system has just been introduced and achievement of JV works is still minimal.

On the other hand, machinery leasing among contractors is widely practiced for filling the shortage of machinery. Some contractors are members of CATA, assisting business development.

(2) Bargaining Power of Suppliers

Labour, materials and machinery are generally required for construction works.

Cost of machinery is especially high in Tanzania. The cost of machinery, fuel, operators and mobilization generally accounts for 40%–70% of the total cost. Many rural contractors don't own machinery except general machinery and equipment, e.g., a pick-up truck and a mini concrete mixer. There was no machinery leasing business in the survey areas, and contractors who do not possess machinery rented from their counterparts. This general shortage of machinery results in difficulty for the contractors to procure machinery timely and at reasonable cost.

A sharp increase in oil prices and fluctuation of exchange rates has resulted in high fuel cost in Tanzania as an oil-importing country. Increase of fuel prices has direct impact on higher machinery operating cost, as well as pushing up of all construction materials cost .

As its nature of LBT works not using machinery, a major outsourcing cost is limited to labour. Such labour cost fluctuates depending on the origin of the nature of labour. For example, a labour cost tends to be high if a construction site is far from a village or labour input is required during the farming season.

(3) Bargaining Power of Customers

The clients of contractors in rural areas are LGA Councils and TANROADS regional offices. It is generally not easy for a small contractor to negotiate equally with public sector clients.

LGA Council works don't require high technical criteria, and have a tight budget. In view of technical matters, council engineers/technicians don't manage quality control of works; thus, achievement and/or contractors' technological strength are hardly evaluated. This results in unclear judgment of technological differences among contractors and also in tougher price competition.

Although PMO-RALG notifies the budgetary ceiling to each LGA Council based on standardized nationwide unit prices, the cost of construction varies by local environments. Unless a council engineer has adequate capabilities, the construction cost might not be properly adjusted, often causing the actual construction cost to be higher than the budgeted cost.

Furthermore, LGA Councils' bargaining power influences contractors' cash flow. LGA Councils receive a quarterly budget for road management mainly from PMO-RALG. Budget allocation delay from PMO-RALG is common, resulting in LGA Councils' delayed payments to the contractors.

TANROADS works include simple maintenance works (grass cutting, drainage, surface cleaning) for lower class contractors. Status of contract for these maintenance works is different among regions. For example, TANROADS-Iringa often invites lower class contractors to maintenance works, while others don't. TANROADS is technically and financially superior to LGA Councils. Rural road contractors put more emphasis on a contract with TANROADS than LGA Councils.

(4) Forecast of the Construction Market in Rural Areas

Road network is one of the basic infrastructures. The current level of rural road maintenance in Tanzania is considered low, while other transportation modes are yet developed. Thus, investment on road network will continue for the time being.

Low barriers to entry and strong bargaining power of suppliers/customers would force contractors to have high quality and process control capabilities for differentiation from others in the rural road market where high technology and machinery are not required.

In spite of such a facing situation, LGA personnel don't manage to monitor quality in process and evaluate works partially because they have no equipment for quality control tests. Thus, contractors' quality and process control capabilities will not be evaluated properly, and tough price competitions will continue. Unless proper monitoring and evaluation of LGA personnel are conducted, the construction market in rural areas will remain unfair, and contractors will decide to enter TANROADS works instead of LGA Councils' works.

4.1.3 Interviewed Contractors

The JICA Survey Team interviewed eleven contractors in four regions. Interviewed contractors included CRB Classes 1–6, with Class 5 contractors as the majority.

Situations faced by rural contractors in views of human resource, machinery, financial condition and access to information are described in the following sections.

(1) Human Resources

[General]
Contractors have a few engineers and technicians. Because criteria of CRB Class qualification include the number of engineers employed by the contractors, some contractors have their employees to have training arranged by colleges which provide certification for engineers.

Some contractors requested a practical training on site. The desired contents of training were supervision of works, documentation of tender and contract, safety and sanitation, and management. Desired duration of training was 1–3 months.

Contractors' receiving ATTI training varies by LGA. The main reason for not undergoing the training was identified insufficient works that specify the use of LBT, little chance of using the trained personnel or contribution to the company profit.

A major form of human resources management is use of part-time employees. Some contractors employed subcontractors depending on the nature of works and amount of contract.

[Dodoma/Chamwino District]
Because ATTI training was held last year in Dodoma, all three interviewed contractors experienced the training. They hoped that the training would be more practical.

[Mbeya/Mbeya Rural District]
Although ATTI is located in this region, all three interviewed contractors had not experienced ATTI trainings yet. This was mainly because insufficient works that specify the use of LBT as mentioned above. It was found that a contractor utilized a training program at Mbeya Institute of Technology.

[Iringa]
Thanks to its proximity to Dar es Salaam and Mbeya, contractors of this region positively utilized University of Dar es Salaam, Mbeya Institute of Technology, and ATTI to promote capacity building of employees. A Class 6 contractor mentioned of its using practical training of TASAF during periods when there is no business.

[Mwanza]
Because ATTI certification was not required for contractors to win LBT works, they didn't intend to participate in ATTI training.

(2) Machinery Resources

[General]
Most contractors didn't own large-sized machinery for road works. In case such machinery is required, a contractor rent from the higher class contractors who own the necessary machinery. There was no private company or agency specializing in road machinery leasing in the survey areas.

When contractors who don't possess machinery rental from contractors who own it, rental charges and periods are influenced by intention and condition of contractors who own it. Shortage of machinery sometimes forced a borrower to agree to a disadvantageous contract in rural areas.

The lower class contractors tended to face worse loan conditions from commercial banks. Class 5 contractors' borrowing rate from commercial banks was 14%–30% according to the amount of loan. A Class 6 contractor in Iringa couldn't borrow money from banks. This situation increased the risk to obtain machinery. The share of the cost including machinery, fuel, operators, and mobilization was 40%–70%. Expensive rental charges strongly tempt contractors to own machinery and raise profit from it.

Shortage of LGA Councils' works made it difficult to keep the working rate of machinery high in a limited area, and forced contractors to participate in works far away. Therefore, mobilization distance becomes long, and this leads to increased mobilization cost.

As a good trend, contractors who purchased machinery were exempted from VAT and import duties with CRB assistance.

[Dodoma/Chamwino District]
Civil Class 5 contractors who also registered as Building Class 2 didn't own machinery for road works except a dump truck (tipper). There were rental agencies who dealt with general equipment for building works.

A Civil Class 5 contractor owned machinery for road works. He participated aggressively in works in other regions to develop a working rate of machinery but had no intentions to ever employ LBT works.

[Mbeya/Mbeya Rural District]
All three interviewed contractors who are registered as Civil Class 5 didn't have machinery for road works, and rented from TEP (TANROADS Equipment Pool) which was a big workshop managed by TANROADS-Mbeya.

A contractor had requested ATTI to lend machinery. After he was rejected twice, he never requested again. Other interviewed contractors hadn't utilized ATTI's machinery yet.

[Iringa]
A Civil Class 4 contractor was aggressively gaining machinery for road works. A Civil Class 6 contractor didn't own any except a dump truck, and rented it from contractors near the construction sites. He sometimes utilized TEP's machinery.

[Mwanza]
All contractors (Civil Classes 1, 4, 5) who answered the questionnaire by the JICA Survey Team had one or more pedestrian roller. LBT works assisted by development partners was also open to higher class contractors, and machinery for LBT works was popular. A Civil Class 1 contractor was engaged in the project assisted by a development partner of a 140 kilometers road maintenance service which was conducted by the contractor for five years.

(3) Financial Conditions

[General]
It is difficult to generalize contractors' financial situations with their capital turnover rate between 10%–300%. Information is limited, but the below evident issues, in addition to high borrowing rates, make contractors' cash flow worse.

Substantial Advance Payment
The clause of advance payment was usually valid in the contract, but some contractors who didn't possess suitable property could hardly submit the bond for an advance payment because the commercial bank criteria were strict.
CRB and CATA managed the system which undertook bonds of commercial bank. The beneficiaries of the system are limited to lower class contractors due to lack of funds.

Adjustments for Changes in Cost
Inflation in Tanzania is high. In addition to rising oil prices all over world, doubled fuel levies in Tanzania caused fuel prices and other construction material prices to surge.
The period for rural road works was often three to six months. Adjustments for changes in cost were not valid in both LGA Council works and TANROADS works. Labour rate tends to follow rise in other prices. These were crucial problems for lower class contractors which didn't possess enough property.

[Dodoma/Chamwino District]
All three interviewed contractors didn't receive an advance payment. CATA's Dodoma branch was planning to lend money to contractors at low borrowing rate.

Retention money was not reimbursed to contractors till the defect liability period (within one year) finished. There were some cases where contractors didn't receive it after the period.

[Mbeya/Mbeya Rural District]
One of three interviewed contractor received an advance payment. Another contractor had utilized CRB financial assistance, CAF (Contractors Assisted Fund).

The contractors said that the budget of District Council's works wasn't estimated based on the latest market price. Poor evaluation by District personnel let contractors make a lower bid than the reasonable estimation.

[Iringa]
Both interviewed contractors received an advance payment. Civil Class 6 contractor employed SACCOs (Savings and Credit Cooperative Societies) assisted by CATA. This contractor couldn't borrow money from commercial banks. The financial assist by CRB and CATA were focused on small contractors, and had a little fund. Thus a Civil Class 4 contractor had not utilized them.

[Mwanza]
All interviewed contractors received an advance payment. They had not borrowed any money from CRB, CATA, or other non-commercial banks.

District Council's payment for works was often delayed.

(4) Access to Information

Tender information was easily accessible to contractors through newspapers, organizational publications or PPRA (Public Procurement Regulatory Authority)'s web site. However, information on detailed evaluation in the tender was hardly accessible.

Information on market prices was not adequate. Many rural contractors had limited channels to compare the price reasonably. Even if they obtain average market price information, the information wouldn't be qualified by the public sector or third parties. Thus, the information couldn't help to change the unit price defined by PMO-RALG through claims against LGA personnel, and accessibility to information could hardly raise the amount of contract for LGA Councils' works.

4.1.4 Organization Related to Contractors

To develop the construction industry and improve its presence, several measures have been tackled by the public and private sector. The public organization responsible for these issues is CRB, and CATA is on behalf of contractors.

(1) Contractor Registration Board (CRB)

CRB is the central public organization established in 1997 under the Ministry of Works in order to appropriately regulate the construction industry and promote its development.

All contractors including international companies need to register with CRB in Tanzania. CRB registration has five types: Building, Civil Works, Mechanical, Electrical, and Specialist. Contractors may register several Types.

Each type is divided to seven classes based on the number of engineer and machines, etc. Contractors are restricted to the largest amount per contract in accordance with Civil Classes.

The largest amount per contract and the number of contractors in each Civil Class are shown below.

Table 4-2: The Largest Amount per Contract and the Number of Contractors in Each Civil Class

Class	Limit for single contract (Million TSH)	Number	
		Local	Foregin
1	Unlimited	21	25
2	5,000	18	0
3	3,000	39	0
4	1,500	108	0
5	750	403	0
6	300	684	0
7	150	1,319	0
Total	n/a	2,592	25

Source: Contractors Registration Board Web Site

CRB is providing some assistance for contractors including capacity building and financial support as well as registration and monitoring. CRB's activities are operated with contractors' registration fees.

[Capacity Building]
CRB provided seven training courses below which were open to all registered contractors.

Table 4-3: CRB's Training Courses

	Subject	Target*
1	Corporate Governance	DP,TE
2	Construction Pre-Contract Practice	TE
3	Resource Management in Construction Site	DP,TE
4	Contract Management	DP,TE
5	Construction Planning, Organization and Control	TE,TS
6	Equipment Management	TE,TS
7	Occupational Health and Safety (OHS) in Construction Site	TE,TS

* DP: Directors, Partners
TE: Top Executive Management
TS: Technical Supervisory Staff

Source: Corporate Information, Contractors Registration Board

[Financial Support]
CRB provided the financial support through CAF (Contractors Assistance Fund), which was limited to Class 4–7 contractors. CAF undertook a part of the bond for contractors to encourage commercial banks to issue bond for bids and/or advance payment, and helped contractors financially at bidding and commencement of works.

CRB realized exemption from VAT and import duties for contractors who purchased machinery after recommending it to the government of Tanzania.

(2) Contractors Association of Tanzania (CATA)

CATA is a contractors association established in 2002 in order to promote development of the construction industry. CATA has branch offices in twenty regions and has 363 members as of 2011.

CATA tackles issues on development of the construction industry with CRB on behalf of contractors. In the past, CATA had advocated tax exemption for machinery purchase and forming joint venture (JV) for projects. CATA was also assisting lower class contractors to support financially through SACCOs (Savings and Credit Cooperative Societies).

4.2 Equipment/Machinery Owned by Local Governments and Contractors

4.2.1 Equipment/Machinery Owned by the Public Sector

(1) Region and LGA Council

All interviewed local governments (Region and District Council) didn't own any machinery.

In the past, some local governments had machinery of their own, and there used to be a nationwide organization which owned and maintained machinery for road works. However, shortage of timely budget for maintenance and lack of efficient operation caused the organization to fail.

The Iringa Regional Secretariat Engineer said that Makete District Council in Iringa Region had one grader and provided rental service to contractors, and that the Municipal Council in the same region was planning to procure several machines and begin a machinery rental service next year.

(2) TANROADS

There are TEPs (TANROADS Equipment Pool), which are big workshops for road work machinery, in five regions (Mbeya, Morogoro, Tanga, Mtwara, Lindi). The JICA Survey Team visited TEP-Mbeya.

TEP's machines are overtaken by TEP after projects finish and most of their service period are 15–30 years long. These machines are utilized mainly for TANROADS works, but the operating rate of TEP's machines recently decreased because contractors of TANROADS' large projects procured machinery on their own.

TEP produced a rental machinery service for contractors of not only TANROADS works but LGA Council works with idle machinery. TEP had maintained machinery for LBT works in the past, but is no longer interested in doing so due to the lack of need.

Table 4-4: Machinery Owned by TEP–Mbeya

Item		Qty	Service Period (year)	Condition			Operation Days* (days/year)
				Good	Fair	Not Work	
Road Works Machinery	Motor Grader	10	8 - 24	5	4	1	60 - 100
	Wheel Loader	5	9 - 32	3	1	1	50 - 60
	Bull Dozer	3	9 - 24	1	2	0	60 - 80
	Excavator	2	23 - 26	0	1	1	40 - 40
	Mini Excavator	1	18 - 18	0	1	0	50 - 50
	Crashers	1	30 - 30	0	0	1	0 - 0
	Tire Roller	2	23 - 29	0	1	1	30 - 30
	Towed Compactors	2	22 - 23	0	1	1	30 - 30
	Compactors	6	8 - 14	6	0	0	100 - 100
	Tractors	4	19 - 24	0	2	2	20 - 20
	Tractor Trailers	5	24 - 25	0	4	1	20 - 20
	Tippers	21	11 - 29	4	13	4	50 - 70
	Horse Trucks	2	17 - 34	0	2	0	20 - 100
	Cargo Trucks	1	22 - 22	0	1	0	70 - 70
	Craned Trucks	2	18 - 22	0	2	0	0 - 30
	Low Loaders	2	20 - 33	0	2	0	50 - 50
	Flat Bed	1	27 - 27	0	1	0	0 - 0
	Trailer Water Bowser	1	27 - 27	0	1	0	20 - 20
	Water Bowser	2	9 - 22	1	1	0	0 - 120
Sub Total		73		20	40	13	
Vehicles	Station Wagon	5	9 - 19	2	2	1	50 - 120
	Hard Top Wagon	3	9 - 16	1	1	1	40 - 80
	Pick Up	2	14 - 16	1	0	1	50 - 50
	Motor Cycles	17	16 - 17	17	0	0	20 - 20
Sub Total		27		21	3	3	
Equipment and Others	Pedestrian Roller	1	18 - 18	0	1	0	20 - 20
	Plate Compactor	4	9 - 18	3	1	0	5 - 10
	Vibratory Tamper	3	9 - 9	3	0	0	5 - 5
	Air Compressor	2	18 - 18	0	1	1	10 - 10
	Welding Machine	1	18 - 18	0	1	0	10 - 10
	Welding Generator	2	20 - 27	1	0	1	50 - 50
	Electric Generator	3	18 - 27	2	0	1	40 - 80
	Water Pump	2	18 - 18	0	0	2	0 - 0
	Tar Boiler	1	18 - 18	0	1	0	20 - 20
	Folk Lift	1	29 - 29	0	1	0	10 - 10
Sub Total		20		9	6	5	
TOTAL		120		50	49	21	

* excluding [Not Work] machines

Source: JICA Survey Team based on interviews

4.2.2 Equipment/Machinery Owned by the Private Sector

As mentioned in 4.1.3(2), many contractors didn't own machines for road works, but some of them were positively obtaining more. Machinery owned by interviewed contractors is shown below. A few contractors have a motor grader, a compactor, and an excavator. Many contractors had dump trucks (tippers) including small size ones.

Table 4-5: Machinery Owned by Contractors

Item	Dodoma			Mbeya			Iringa		Mwanza		
	#1 Civil 5	#2 Civil 5	#3 Civil 5	#1 Civil 5	#2 Civil 5	#3 Civil 5	#1 Civil 4	#2 Civil 6	#1 Civil 1	#2 Civil 4	#3 Civil 5
Motor Grader	0	0	1	0	0	0	1	0	0	0	0
Compactor	0	0	0	0	0	0	1	0	0	0	0
Excavator	0	0	1	0	0	0	1	0	0	0	0
Tipper	0	1	0	2	1	1	6	1	1	1	1
Water Bowler	0	0	0	2	0	1	2	1	0	0	0
Low Bed Trailer	0	0	1	0	0	0	0	0	0	0	0
Pedestrian Roller	0	0	1	1	0	0	0	0	3	1	1

*excluding small equipment like a concrete vibrator
Source: JICA Survey Team based on interviews

4.3 Maintenance of Equipment/Machinery in Rural Areas

4.3.1 Status of Maintenance by the Public Sector

(1) LGA Council

None of interviewed District Councils maintained machinery for road works.

(2) TEMESA

TEMESA (Tanzania Electrical Mechanical and Electronics Service Agency) was established in 2005 under the Ministry of Works. The Business Plan for FY2006/07 issued by TEMESA on June/2006 indicated that TEMESA had been planning to provide the services below.

- Engineering service in electrical, mechanical, electronics
- Consulting service in electrical, mechanical, electronics
- Equipment rental and ferry service
- Business support service

TEMESA-Dodoma, which the JICA Survey Team interviewed, maintained machines and vehicles owned by TANROADS-Dodoma. Vehicles for supervision are mainly repaired. However, contractors do not bring in their machinery for repair.

TEMESA-Dodoma seemed not to have enough capability to maintain and repair in reasonable time and cost, judging from the condition of cranes and implements. No stock of spare parts made lead time longer because it was necessary to order parts to suppliers when poor quality of parts is confirmed, which happens every time.

The business plan report defined contractors and TEP as competitors for rental machinery service, and TEMESA had provided the rental service before as this report. But as the report mentioned that in the past, machinery remained outdated and in poor condition, and rental service had already finished.

Picture 4-1: TEMESA-Dodoma: Vehicles Waiting for Repair

Picture 4-2: TEMESA-Dodoma: Implements Room

(3) TEP

TEP (TANROADS Equipment Pool) had a few engineers dispatched from TANROADS, and maintained machinery for road works under the TANROADS Regional Manager. TANROADS was not involved in road works, but its machinery was utilized mainly by contractors of TANROADS works. The status of maintenance was relatively good and more acceptable than other public organizations.

Managing cost except wages of dispatched engineers was covered by rental charges. TEP owned some spare parts, but it was suspicious to store dead stock judging from the condition of storage. Aging of machinery made procurement of parts difficult because custom-made or discontinued parts were used and spare parts costs were increasing.

The central government's approval was required for investment and remove registered machinery from TEP. Loose management and such troublesome procedures have led to neglect or abandonment of machines that are worthless or requiring repair.

TANROADS headquarters had no intentions to increase TEP; thus, the TANROADS Regional Managers without TEP weren't interested in maintenance service of machinery.

Picture 4-3: TEP-Mbeya: Stockyard

Picture 4-4: TEP-Mbeya: Spare Parts Storage

4.3.2 Status of Maintenance by Contractors

Machinery owned by contractors was in good condition, and had a high operating rate. Most of contractors said that proper maintenance and skilled operators were required to promote operating rate. Thus contractors had much interest in maintenance of machinery.

Flexible budget allocation and recognition of the importance of machinery allowed quick procurement of spare parts and technicians, and minimized the period for maintenance. Furthermore, suppliers are always able to stock spare parts as none are discontinued; therefore it was possible to deliver most parts from Dar es Salaam within a few days.

4.4 Rental Service of Equipment/Machinery in Rural Areas

4.4.1 Dealer of Machinery for Road Works

The JICA Survey Team requested a contractor located in Dar es Salaam to search dealers specializing in rental and maintenance service of machinery; however, information on these dealers could not be acquired.

The JICA Survey Team visited two dealers in Dar es Salaam. One of them who mainly dealt with large machinery for mining was in charge of sale and maintenance service, but not rental service. The other dealer was also providing sale and rental service for road works machinery while engaged in construction works as CRB Class 4 contractor.

All interviewed contractors utilized rental services which other contractors provided.

Picture below is the warehouse of the dealer who also conducts construction works in Dar es Salaam. Spare parts were arranged in the order of the item number, and negotiations were conducted.

Picture 4-5: Dealer's Storage in Dar es Salaam

4.4.2 Status and Issues of Rental Service of Equipment/Machinery

(1) Rental Service Provided by TEP

The agent who specially utilized rental services of equipment/machinery for road works was only TEP (TANROADS Equipment Pool) for both public and private sectors. There were only five TEPs in the country, and TEPs planned to provide the service in each region. In addition, TANROADS headquarters would not promote TEPs; thus, TEP's rental service would be hardly available to contractors outside the regions.

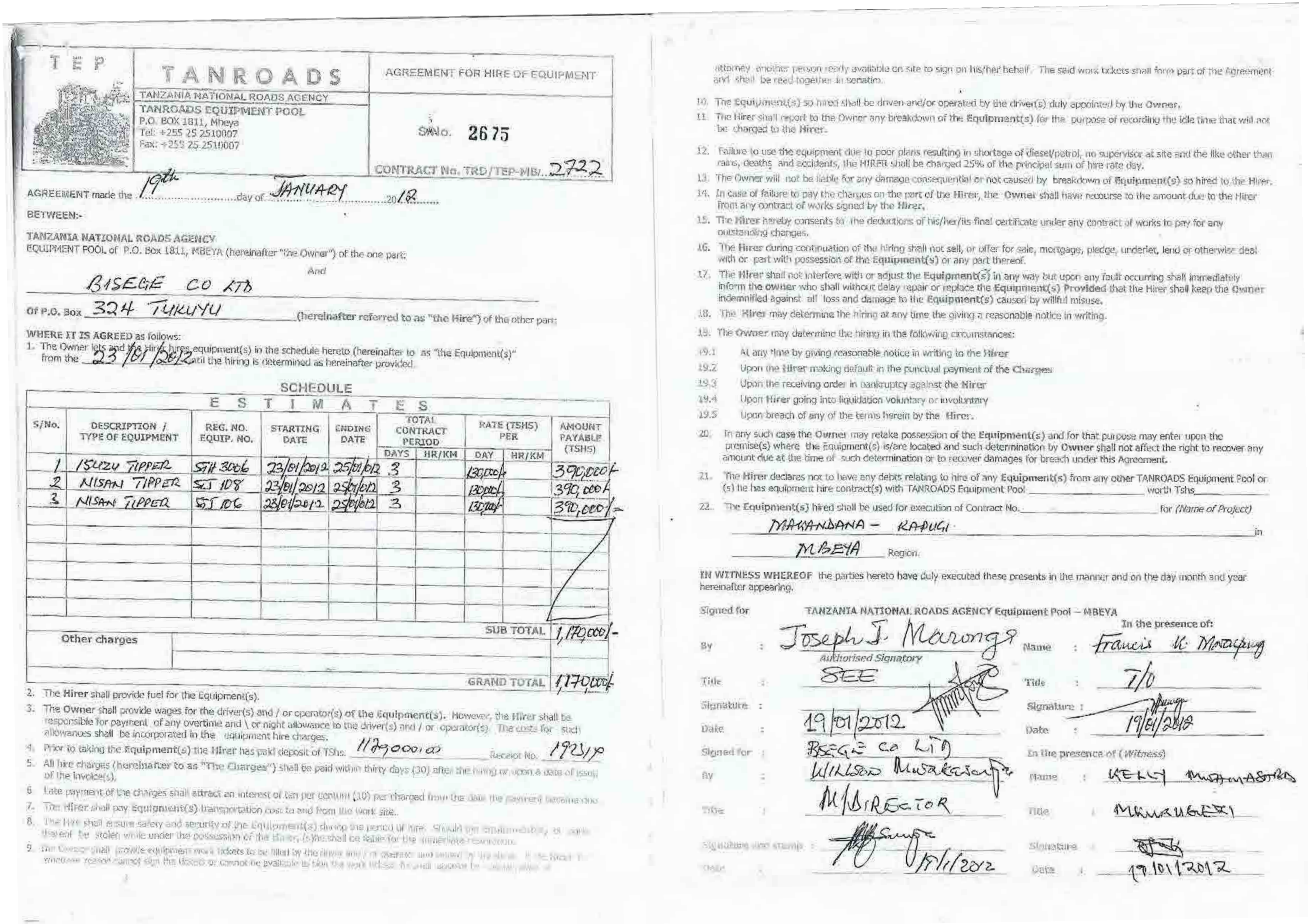
The copy of TEP-Mbeya's rental contract is showed in Figure 4-2. The signer of the lessee is the TANROADS Regional Manager.

The unit price list of TEP-Mbeya is shown in Figure 4-3. Rental charges were set lower than that of public agencies.' This was mainly because TEP's machines were donated after projects had completed and the charges were supposed not to include depreciation costs. These unit prices were usually utilized by LGA personnel for cost estimation.

(2) Rental Service Provided by Contractors

As mentioned in 4.1.3(2), contractors who didn't own machinery often rented it from contractors who own it. The limited machinery supply in rural areas forced borrowers to agree to disadvantaged conditions in terms of rental charges and periods.

Compared to trunk road maintenance, investment on rural roads remained low. When distance between sites was long, mobilization cost would rise. Even if contractors could access some dealers, they sometimes rented machinery from the dealer whose rental charges were higher than others after comparison of total cost (rental charges, mobilization and fuel cost), which have a large impact on contractors' profit.



TEP

TANROADS

TANZANIA NATIONAL ROADS AGENCY
TANROADS EQUIPMENT POOL
P.O. BOX 1811, Mbeya
Tel: +255 25 2510007
Fax: +255 25 2510007

AGREEMENT FOR HIRE OF EQUIPMENT

S/No. 2675

CONTRACT No. TRD/TEP-MB/..2722

AGREEMENT made the 19th day of JANUARY 2012

BETWEEN:-

TANZANIA NATIONAL ROADS AGENCY
EQUIPMENT POOL of P.O. Box 1811, MBEYA (hereinafter "the Owner") of the one part:

And

BISEGE CO LTD

Of P.O. Box 324 TUKUYU (hereinafter referred to as "the Hire") of the other part:

WHERE IT IS AGREED as follows:

1. The Owner lets and the Hirer hires equipment(s) in the schedule hereto (hereinafter to as "the Equipment(s)" from the 23/01/2012 until the hiring is determined as hereinafter provided.

SCHEDULE

E S T I M A T E S

S/No.	DESCRIPTION / TYPE OF EQUIPMENT	REG. NO. EQUIP. NO.	STARTING DATE	ENDING DATE	TOTAL CONTRACT PERIOD		RATE (TSHS) PER		AMOUNT PAYABLE (TSHS)
					DAYS	HR/KM	DAY	HR/KM	
1	ISUZU TIPPER	STH 3066	23/01/2012	25/01/012	3		130,000/-		390,000/-
2	NISAN TIPPER	SJ 108	23/01/2012	25/01/012	3		130,000/-		390,000/-
3	NISAN TIPPER	SJ 106	23/01/2012	25/01/012	3		130,000/-		390,000/-
								SUB TOTAL	1,170,000/-
Other charges									
								GRAND TOTAL	1,170,000/-

2. The Hirer shall provide fuel for the Equipment(s).
3. The Owner shall provide wages for the driver(s) and / or operator(s) of the Equipment(s). However, the Hirer shall be responsible for payment of any overtime and \ or night allowance to the driver(s) and / or operator(s). The costs for such allowances shall be incorporated in the equipment hire charges.
4. Prior to taking the Equipment(s) the Hirer has paid deposit of TShs. 1129000.00 Receipt No. 1923/10
5. All hire charges (hereinafter to as "The Charges") shall be paid within thirty days (30) after the hiring or upon a date of issue of the invoice(s).
6. Late payment of the charges shall attract an interest of ten per centum (10) per charged from the date the payment became due.
7. The Hirer shall pay Equipment(s) transportation cost to and from the work site.
8. The Hire shall ensure safety and security of the Equipment(s) during the period of hire. Should the Equipment(s) or part thereof be stolen while under the possession of the Hirer, (s)he shall be liable for the immediate restoration.
9. The Owner shall provide equipment work tickets to be filled by the driver and / or operator and signed by the Hirer. If the Hirer for whatever reason cannot sign the tickets or cannot be available to sign the work tickets (s)he shall appoint by [illegible] attorney another person ready available on site to sign on his/her behalf. The said work tickets shall form part of the Agreement and shall be read together in seriatim.
10. The Equipment(s) so hired shall be driven and/or operated by the driver(s) duly appointed by the Owner.
11. The Hirer shall report to the Owner any breakdown of the Equipment(s) for the purpose of recording the idle time that will not be charged to the Hirer.
12. Failure to use the equipment due to poor plans resulting in shortage of diesel/petrol, no supervisor at site and the like other than rains, deaths and accidents, the HIRER shall be charged 25% of the principal sum of hire rate day.
13. The Owner will not be liable for any damage consequential or not caused by breakdown of Equipment(s) so hired to the Hirer.
14. In case of failure to pay the charges on the part of the Hirer, the Owner shall have recourse to the amount due to the Hirer from any contract of works signed by the Hirer.
15. The Hirer hereby consents to the deductions of his/her/its final certificate under any contract of works to pay for any outstanding changes.
16. The Hirer during continuation of the hiring shall not sell, or offer for sale, mortgage, pledge, underlet, lend or otherwise deal with or part with possession of the Equipment(s) or any part thereof.
17. The Hirer shall not interfere with or adjust the Equipment(s) in any way but upon any fault occurring shall immediately inform the owner who shall without delay repair or replace the Equipment(s) Provided that the Hirer shall keep the Owner indemnified against all loss and damage to the Equipment(s) caused by willful misuse.
18. The Hirer may determine the hiring at any time the giving a reasonable notice in writing.
19. The Owner may determine the hiring in the following circumstances:

19.1 At any time by giving reasonable notice in writing to the Hirer
19.2 Upon the Hirer making default in the punctual payment of the Charges
19.3 Upon the receiving order in bankruptcy against the Hirer
19.4 Upon Hirer going into liquidation voluntary or involuntary
19.5 Upon breach of any of the terms herein by the Hirer.

20. In any such case the Owner may retake possession of the Equipment(s) and for that purpose may enter upon the premise(s) where the Equipment(s) is/are located and such determination by Owner shall not affect the right to recover any amount due at the time of such determination or to recover damages for breach under this Agreement.
21. The Hirer declares not to have any debts relating to hire of any Equipment(s) from any other TANROADS Equipment Pool or (s) he has equipment hire contract(s) with TANROADS Equipment Pool ______ worth Tshs______
22. The Equipment(s) hired shall be used for execution of Contract No.______ for *(Name of Project)* MAKANDANA – KAPUGI in MBEYA Region.

IN WITNESS WHEREOF the parties hereto have duly executed these presents in the manner and on the day month and year hereinafter appearing.

Signed for TANZANIA NATIONAL ROADS AGENCY Equipment Pool – MBEYA

By : Joseph J. Marongo
Authorised Signatory
Title : SEE
Signature :
Date : 19/01/2012

In the presence of:
Name : Francis K. Matagung
Title : T/O
Signature :
Date : 19/01/2012

Signed for : BISEGE CO LTD
By : WILLSON MWAKASONGE
Title : M/DIRECTOR
Signature and stamp :
Date : 19/1/2012

In the presence of (*Witness*)
Name : KELLY MWAMASOTRA
Title : MKWRUGENZI
Signature :
Date : 19/01/2012

Figure 4-2: TEP-Mbeya Rental Contract

TEP MBEYA HIRE RATES WITHOUT FUEL

EFFECTIVE FROM 1ST JULY 2011

Light Vehicles

Sub group Description	Daily	Hr/Km
L/C Station STD	130,000.00	510.00
L/C Hardtop 10 seater	130,000.00	510.00
L/C Pick - Up	130,000.00	510.00

Motorbikes

Sub group Description	Daily	Hr/Km
Honda CT 110	15,000.00	1,875.00

Road Works Transport

Sub group Description	Daily	Hr/Km
Tipper 7 tons	100,000.00	12,500.00
Crane Lorry 7/3 tons	200,000.00	25,000.00
Crane Lorry 4/1.5 tons	200,000.00	25,000.00
Cargo truck 10 - 12 tons	300,000.00	37,500.00
Water Bowser > 1000 ltr	200,000.00	25,000.00
Water Bowser 9000 - 10000 ltr	200,000.00	25,000.00
Low Loader Horse 26 tons	400,000.00	50,000.00
Low Loader Horse 32 tons	400,000.00	50,000.00
Low Loader Trailer (bed) 40 tons	350,000.00	43,750.00
Low Loader Trailer (bed) 35 tons	300,000.00	37,500.00
Semi Water Bowser	200,000.00	25,000.00

Heavy Plant

Sub group Description	Daily	Hr/Km
Dozer 20.5 tons	700,000.00	87,500.00
Dozer 15 - 18 tons	700,000.00	87,500.00
Wheelloader 1.5m³	350,000.00	43,750.00
Wheelloader 2m³	400,000.00	50,000.00
Motor Grader 12 - 13 tons	650,000.00	81,250.00
Motor Grader = > 14 tons	650,000.00	81,250.00
Vibrating Roller 10 tons	450,000.00	56,250.00
Vibrating Roller 6 - 9 tons	400,000.00	50,000.00
Pneumatic Roller	350,000.00	43,750.00
Chipping Spreader	400,000.00	50,000.00
Small Excavator < 9 tons	200,000.00	25,000.00
Medium Excavator 20 tons	700,000.00	87,500.00
Heavy Excavator 42 tons	750,000.00	93,750.00

Light Equipment

Sub group Description	Daily	Hr/Km
Asphalt Plant	250,000.00	31,250.00
Bitumen Heater/Sprayer	150,000.00	18,750.00
Compressor 3.5 m³/min	150,000.00	18,750.00
Compressor 2.5 m³/min	95,000.00	11,875.00
Tractor 4x4 70 - 100 HP	150,000.00	18,750.00
Tractor 2x4 50 HP	150,000.00	18,750.00
Towed Vibro Roller	150,000.00	18,750.00

Various Equipment

Sub group Description	Daily	Hr/Km
Pedestrian Roller < 1 ton	75,000.00	9,375.00
Plate Compactor 0.2 ton (Big)	75,000.00	9,375.00
Plate Compactor (Small)	50,000.00	6,250.00
Tamper Roller	50,000.00	6,250.00
Waterpump	40,000.00	5,000.00
Generator < 10 KVA	40,000.00	9,375.00
Concrete Mixer 350 - 500 ltrs	75,000.00	5,000.00
Asphalt Burner	40,000.00	9,375.00
Electr. Welding Machine	75,000.00	6,250.00
Tractor Trailer	50,000.00	6,250.00

Figure 4-3: TEP-Mbeya Unit Price List

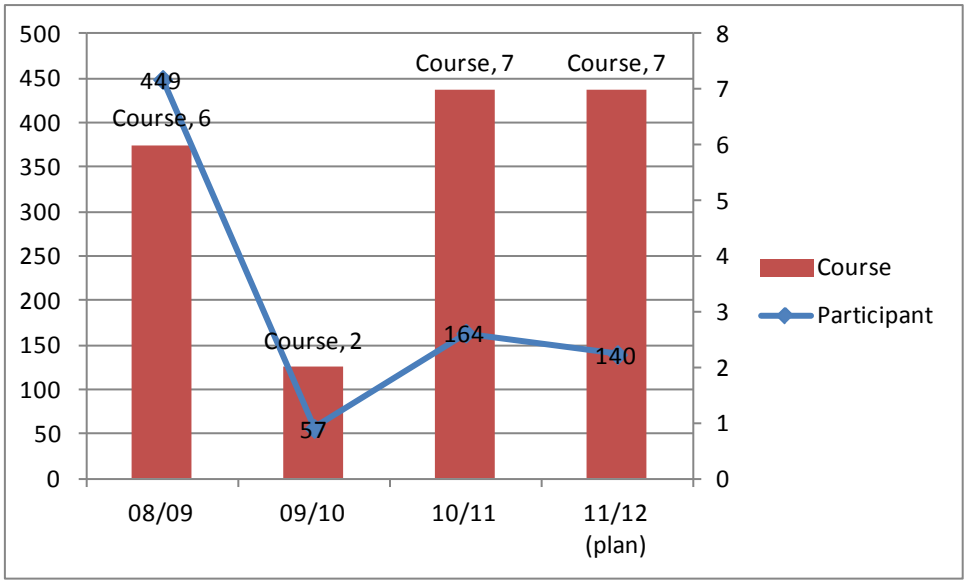
5. Roads Development/Maintenance Practice Using LBT

5.1 ATTI's Impact on Rural Roads Works

5.1.1 Status of ATTI

ATTI is located near Tukuyu City in Rungwe District Council, and it takes two hours from Mbeya Airport to ATTI. ATTI provides several training classes specializing in LBT. There used to be an ATTI office in Tanga in the late 1990s, but it had closed for the purpose of overall operating cost reduction of ATTI.

ATTI provided seven classes for 164 persons who included engineers, technicians, assistants, and those in leadership roles such as village leaders and proprietresses in both public and private sectors in 2010/11. The scale of training depends on funding by development partners. For example, the number of participants dropped significantly, from 449 (2008/09) to 57 (2009/10). ATTI plans to provide seven classes for 140 persons this fiscal year. However, conducting training programs that average only twelve participants per month would be insufficient, considering the manpower availability of ATTI.



Source: JICA Survey Team based on interviews

Figure 5-1: Number of ATTI's Training Classes and Participants

ATTI owns LBT equipment/machinery given by development partners (cf. Table 5-1), and provides hiring service as long as there is no disturbance to training classes. ATTI is in charge of equipment/machinery maintenance, requesting TEMESA to repair if necessary.

Table 5-1: Machinery and Equipment owned by ATTI

Item	Qty	Supplier	Condition
Pedestrian Roller	6	JICA	Good
Tractor	2	JICA	Good
Plate Compactor	3	JICA	Good
Machine Rammer	1	JICA	Good
Towed Grader	5	JICA/NORAD	Good
Min Concrete Mixer	1	JICA	Good
Towed Trailer	5	JICA/NORAD	Required Tune-up
Water Bowser	4	JICA	Good
Asphalt Heater	1	JICA	Not Working
Chipping Spreader	1	JICA	Good
Asphalt Cutter	2	JICA	Good
Water Pump	3	JICA	Required Tune-up
Dump Truck	1	JICA	Good

Source: JICA Survey Team based on interviews

Picture 5-1: ATTI: Stockyard (Grader)

Picture 5-2: ATTI: Storage for Equipment

5.1.2 Impact on Local Governments

The share of Road Fund in the rural road budget is high. According to statistics (2010/11), the average share, showing in PMO-RALG, was 81%, though dependency on the Road Fund ranges from 62%–99%.

PMO-RALG and RFB (Road Fund Board), when allocating budget for the Road Fund, had made an agreement to utilize 20% of the Road Fund for LBT works, but this agreement is no longer effective. The contractors have the freedom to judge the use of LBT for rural road works funded by the Road Fund.

Although the rest of the budget includes sources specifying the usage of LBT, their low shares against the total budget result in ATTI's minor impact on local governments.

Table 5-2: Budget Sources of Road Works (2010/11)

Unit: million Tsh

	Road Fund	LGTP	LGDG	TASAF	Total
PMO-RALG	84,500	3,461		15,720	103,681
	81%	3%		15%	100%
Chamwino	914	8	0	0	922
	99%	1%	0%	0%	100%
Mbeya	503	8	0	0	511
	98%	2%	0%	0%	100%
Njombe	624	200	25	160	1,009
	62%	20%	2%	16%	100%
Magu	551	0	80	180	811
	68%	0%	10%	22%	100%

Source: JICA Survey Team based on interviews

5.1.3 Impact on Contractors

As mentioned above, usage of LBT depends on contractors' judgment in many cases. Contractors adapt the most profitable (supposedly) construction method considering work sites, seasons and locality. In this case, the contract does not stipulate the use of LBT or necessitate ATTI certification of contractors, so the impact of ATTI's LBT accreditation system on the contractors is considered minimal.

ATTI's own equipment/machinery rental services seem not effectively used even to the contractors in Mbeya, due to mainly ATTI's remote location.

On the other hand, there was a contractor who succeeded in winning LBT works thanks to ATTI's training experience. A Class 6 contractor interviewed in Iringa had been certified by ATTI with DANIDA assistance. This contractor was informed of LBT works from DANIDA branch office, and made an agreement with a private organization this year.

If local governments undertake periodic procurement of road works specifying the use of LBT, contractors' interest into LBT would be enhanced and also ATTI's influence on the contractors would be stronger.

5.2 Performance and Intention of LBT in Local Governments

The quantity and values of the contracts for road works in the last three years are shown in Table 5-3, Table 5-4 and Figure 5-2. In these tables and figure, the quantities and values categorized as "LBT" include only LBT works as the contract conditions requiring the usage of LBT. Other than LBT specifying contracts, contractors have the freedom to choose construction methods as the road works of the Road Fund, meaning the actual quantities and/or values are supposedly larger than the ones shown on the tables and figure below.

Table 5-3: Quantities and Share of LBT Works

		2008-2009		2009-2010		2010-2011	
Chamwino	EBT	21	**100%**	20	**87%**	29	**91%**
	LBT	0	**0%**	3	**13%**	3	**9%**
	Total	21		23		32	
Mbeya Rural	EBT			16	**84%**	12	**92%**
	LBT			3	**16%**	1	**8%**
	Total	0		19		13	
Njombe	EBT	12	**92%**	18	**100%**	16	**100%**
	LBT	1	**8%**	0	**0%**	0	**0%**
	Total	13		18		16	
Magu	EBT	6	**100%**	5	**71%**	5	**50%**
	LBT	0	**0%**	2	**29%**	5	**50%**
	Total	6		7		10	

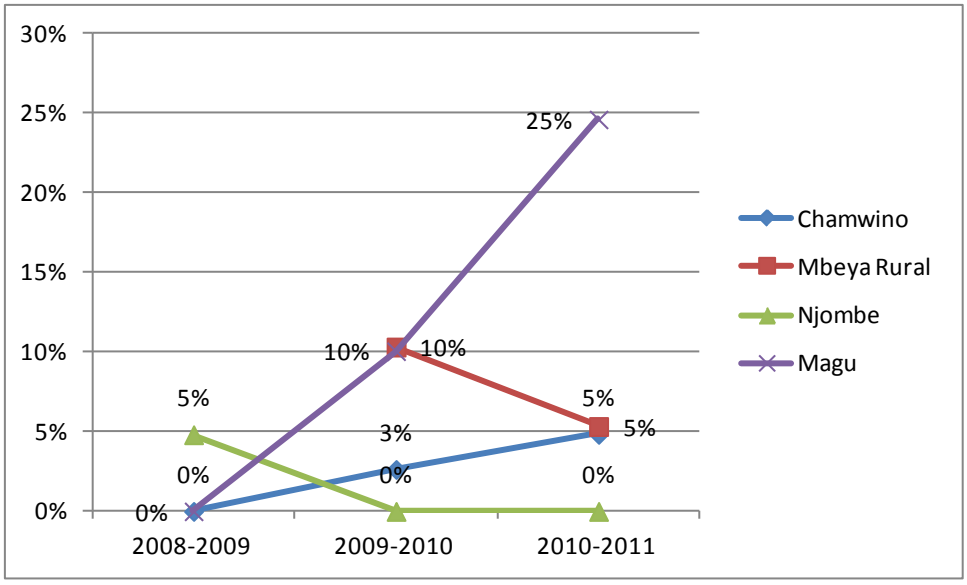
Source: JICA Survey Team based on interviews

Table 5-4: Contract Amount and Share of LBT Works

Unit: million Tsh

		2008-2009		2009-2010		2010-2011	
Chamwino	EBT	668.0	100%	867.3	97%	873.6	95%
	LBT	0	0%	23.5	3%	44.4	5%
	Total	668.0		890.8		918.0	
Mbeya Rural	EBT			427.3	90%	452.4	95%
	LBT			49.2	10%	25.5	5%
	Total			476.5		477.9	
Njombe	EBT	489.5	95%	862.4	100%	877.9	100%
	LBT	24.77	5%	0.0	0%	0.0	0%
	Total	514.3		862.4		877.9	
Magu	EBT	413.7	100%	544.3	90%	551.0	75%
	LBT	0	0%	60.9	10%	180.0	25%
	Total	413.7		605.2		731.0	

Source: JICA Survey Team based on interviews



Source: JICA Survey Team based on interviews

Figure 5-2: Change of LBT Share in Amount

When the JICA Survey Team asked about the forecast of LBT works to the local government engineers, all District personnel interviewed replied negatively. Although some engineers recognize the usefulness of LBT (poverty reduction and ownership development), we found that many local government personnel are reluctant to use LBT due to reasons such as workload in construction supervision and concerns over the longer construction period. On the other hand, one previous study shows that there are LGAs continuously using LBT after receiving supports from DANIDA[16]; this suggests that the use of LBT would be actively pursued under certain conditions.

[16] Source: JICA, Detailed Planning Survey for Rural Roads Maintenance System Development Project in Tanzania, 2011 (in Japanese).

Table 5-5: Forecast of LBT Works by Local Government Engineers

		Forecast of LBT works
Dodoma	Region	**decrease**
	Chamwino District	**decrease**
Mbeya	Region	(noncommittal)
	Mbeya Rural District	**decrease**
Iringa	Region	Increase
	Njombe District	**decrease**
Mwanza	Region	**decrease**
	Magu District	**decrease**

Source: JICA Survey Team based on interviews

[Dodoma/Chamwino]

- Region
  Decrease
  Because of troublesome supervision during long periods and increase in labour wages

- District Council
  Decrease
  Because costs are not cheap and performance is not good

[Mbeya/Mbeya Rural]

- Region
  Noncommittal
  Political assistance is needed because of long periods and lack of labour

- District Council
  Decrease
  Because of less specified LBT works by PMO-RALG in addition to long periods and lack of labour

[Iringa/Njombe]

- Region
  Increase
  Because there are chances that lower-class contractors will develop with profit earned though LBT works and a sense of ownership by the local residents will be developed, which was thought to be difficult in procuring sufficient labour.

- District Council
  Decrease
  Because works won't be completed before the rainy season due to long construction periods, choice of machinery should depend on nature of the sites and not be limited.

[Mwanza/Magu]

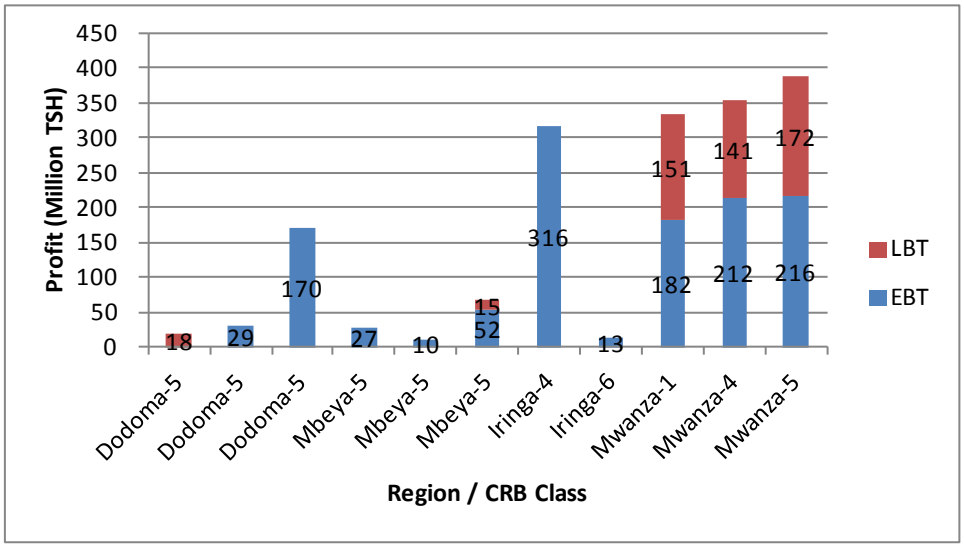
- Region
  Decrease
  Because LBT is low level technology, and few months of employment isn't effective against poverty.

- District Council
  Decrease
  Because funding of works has increased mainly from development partners and it is hard to procure labour; the amount and share of LBT works are increasing rapidly with TASAF fund but future trends are hard to predict.

5.3 Performance and Intention of LBT in Contractors

Contractors' intention of using LBT depends on procurement policies of LGA Councils and TANROADS. Without specifying LBT as a required construction method, contractors generally adopt EBT because of its nature of cost effectiveness and quick benefit recovery. Contractors owning machinery particularly have such intentions for increasing the rate of using their machinery.

In view of lower machinery use cost, LBT is more profitable for contractors, thanks to stable LBT works in Mwanza, contractors prefer to take LBT works regardless of the class (cf. Figure 5-3).



Source: JICA Survey Team based on interviews

Figure 5-3: Breakdown of Contractors' Profit

Some conditions of contractors' spontaneously choosing LBT works include the following:

- Local stable and sufficient LBT works
- Machine operation is difficult in mountainous terrains
- Difficulty in machine procurement
- Closeness to the village and easiness of labour procurement
- Labour cost bargaining during non-farming season

Our survey results indicate some lower class contractors currently engaging in LBT works wanted to own machinery from the earnings generated from LBT works.

In Mwanza, the maintenance service project PMMR (Performance-Based Management and Maintenance of Roads) has been implemented with assistance by development partners. A Class 1 interviewed contractor has been managing 140 kilometer roads for five years with LBT.

6. Funding Schemes for Rural Roads Development

This chapter reviews funding schemes available in Japan's ODA that might be applicable to assisting the rural roads sector in Tanzania as well as those that have been used by DANIDA and NORAD. The chapter also briefly reviews relevant support of other development partners being planned or provided. The finding from these reviews will be taken into account in considering JICA's potential assistance to the sector in the following chapter.

6.1 Project-Type Assistance in Japan's ODA

Project-type financial assistance would be a major mode of assistance in Japan's ODA that might be used to support the sector including the project-type grant aid and ODA loans as described below.

6.1.1 Project-Type Grant Aid

JICA's Grant Aid has various types[17] including Grant Aid for General Projects which is a major project-type assistance to support projects implemented for basic human needs, education, etc. (such as construction of hospitals, schools and roads, or procurement of materials and equipment for public transport vehicles, etc.). This type of assistance, however, is provided through the procurement of Japanese contractors, which may not be appropriate for typical rural road projects in Tanzania that generally can be carried out by local contractors.

The project-type assistance that may be appropriate would be "Grant Aid for Community Empowerment", a program introduced in 2006 for "supporting comprehensive capacity development of communities facing threats to human life or safe living (such as poverty, hunger and disease)". The procurement guideline applied to this aid[18]states that in principle, firms for construction works shall be of recipient country's nationality as long as the firms satisfy the conditions specified in the tender documents[19].

Grant Aid for Community Empowerment has been implemented with procurement management conducted by a procurement agent who signs an Agent Agreement with the government of the recipient country. The amount of the grant for each project ranges from 600 million to 1.2 billion Japanese yen, typically at about 1 billion yen or 12.5 million US dollars (based on 1 US dollar = 80 Japanese yen). While the projects implemented under this scheme are mostly for school facilities development, there are also projects involving construction of roads and bridges; one such example is "the Project for the Improvement of Community Access in Nepal" for which the Grant Agreement was signed by JICA and the Government of Nepal in March 2010.

This Nepal Project may be referenced in considering a grant scheme to assist rural roads development in Tanzania. In its preparatory survey, 13 priority roads in five districts were studied based on the request of the Nepalese government, and 35 river crossings on those roads

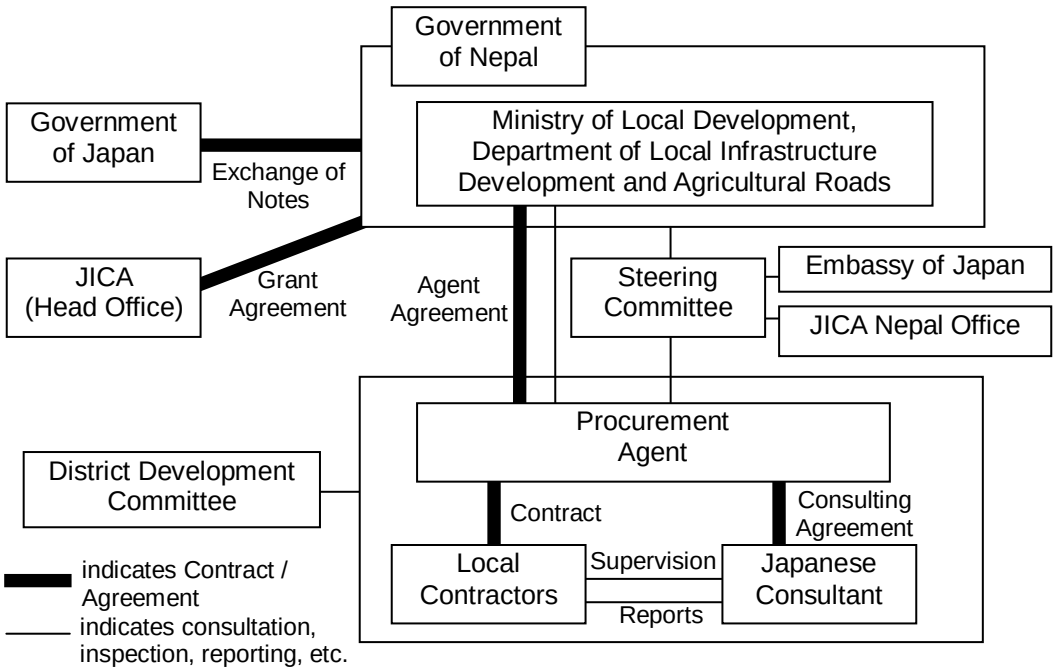
[17] Grant Aid implemented by JICA has following types: Grant Aid for General Projects, Grant Aid for Community Empowerment, Grant Aid for Conflict Prevention and Peacebuilding, Grant Aid for Disaster Prevention and Reconstruction, Grant Aid for Environment and Climate Change, Grant Aid for Poverty Reduction Strategies (public financing support), Grant Aid for Human Resource Development (scholarship), Grant Aid for Fisheries, Cultural Grant Assistance, Grant Aid for Underprivileged Farmers, and Grant Aid for Cooperation on Counter-Terrorism and Security Enhancement.

[18] JICA, The Procurement Guidelines of Japan's Grant Aid (Type I-C), dated May 25, 2011.

[19] Note also that for the procurement of consultants, the guideline states that as a general rule, the Consultant may be Japanese nationals recommended by JICA, for the purpose of maintaining technical consistency with the preliminary examination and other related studies, conducted prior to the signing of the Grant Agreement between JICA and the government of the recipient country.

were identified for bridge construction as project components. It is important to note that considering the potential limitation of the budget, the survey also specified 7 crossings out of 35 as those to be implemented if the budget is available. Providing this kind of flexibility is important when considering this type of assistance for rural roads development in Tanzania, although it is essential to determine project components during the preparatory survey.

The implementation structure of this Nepal Project is shown in the figure below.



Source: JICA, Preparatory Survey Report on the Project for the Improvement of Community Access in Federal Democratic Republic of Nepal, March 2010.

Figure 6-1: Project Implementation Scheme for Nepal Community Access Improvement Project under Grand Aid for Community Empowerment

Strong points of using this grant scheme would include:

- Depending on the type of works to be undertaken, relatively good length of rural roads may be covered using the budget of typical amount under this grant scheme.
- Local competitive bidding can be employed, allowing the use of technologies appropriate for local conditions as well as reducing costs.
- Accountability on the use of the project fund can be secured through the transparent implementation scheme involving a procurement agent from Japan.
- Administration of the project fund is based on JICA's established scheme, not involving any complex process.
- It would be possible to allow certain degree of flexibility in project implementation (e.g., inclusion or exclusion of certain road sections would be possible if so specified in the Grant Agreement.)

Potential issues on the use of this scheme may include:

- Project formulation would be necessary so that the project will be eligible for this grant aid scheme which is for supporting comprehensive capacity development of communities facing threats to human life or safe living.
- Due to the objective of the scheme that is narrowly defined as well as the limited amount that may be provided under the scheme, it may not be possible to cover large areas as the target of the project.
- This scheme does not directly involve local governments in the procurement process, unable to enhance capabilities at a local government level. It would be important to consider providing, together with this scheme, technical assistance to enhance capabilities of local government engineers including those needed in the procurement process.

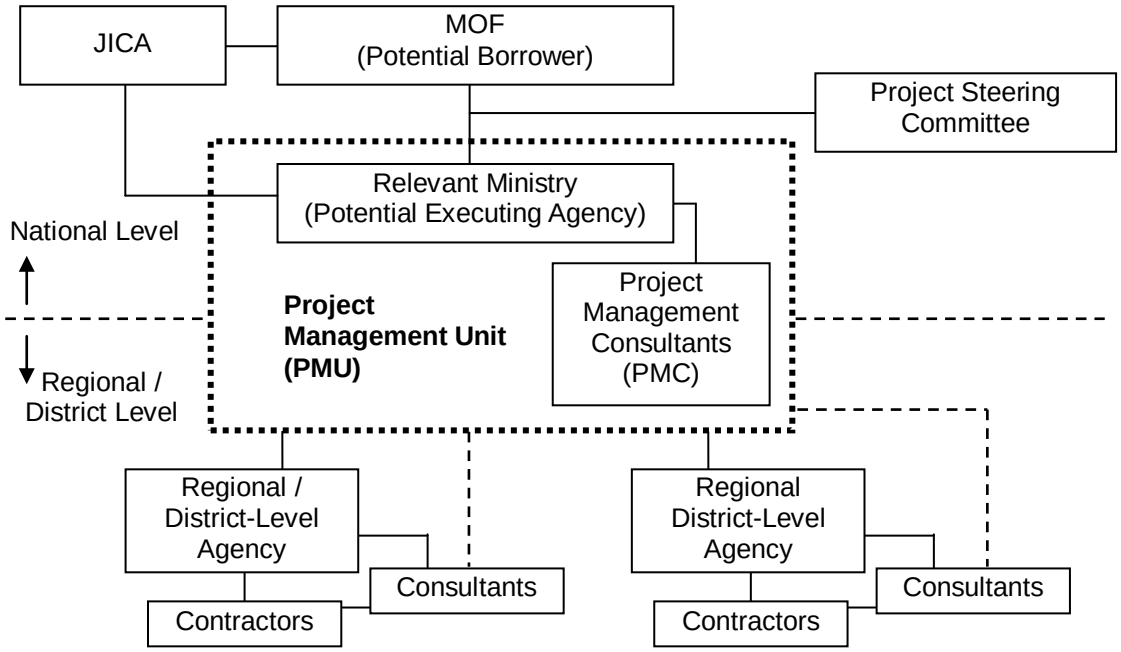
6.1.2 Project-Type Loans

An ODA loan, which requires repayment under concessional terms, is another form of financial assistance by the Japanese government that may be used for rural roads development in Tanzania. Unlike Japan's grant aid, it can provide relatively large amount of development funds, potentially allowing large areas to be covered by one project.

There are several types of ODA loans, of which appropriate for this case would be project loans that are used for the procurement of facilities, equipment and services (including consulting services) and/or for carrying out civil and other related works.

Project loans are normally provided for a project where project components are specified at the time of project appraisal and specifically determined in the loan agreement along with corresponding contract lots. In view of this, project loans are considered an appropriate form of financing for a project with relatively small number of project components, each being relatively large scale. This method, however, may not be quite appropriate for the development activities consisting of a number of small-scale components as in the case of rural roads development with many sections (potentially scattered across the country) to be improved.

When applying a project loan for rural roads development in Tanzania, it would be desirable to use a simpler loan disbursement procedure for smooth project implementation since the project would potentially include a number of sub-projects, thus involving a number of payments to be made to contractors. At the same time, it would be important to establish a project implementation scheme that will enable timely monitoring of the project and the use of the loan proceeds. One such example is shown in the figure below, where a Project Management Unit is established and is assisted by consultants to be employed for the project, thereby centrally and collectively managing the overall project with actual implementation taking place at a regional or LGA level. This method, however, may not necessarily be desirable since conducting overall project management with a newly established unit would not effectively utilize existing systems and would increase workload at a local level.



Source: JICA Survey Team

Figure 6-2: Example of Project Implementation Scheme for ODA Loan Project

Strong points of using a project loan would include:

- Generally, a Japan's ODA loan can provide relatively large amount of development funds, allowing the formulation of a project covering wide areas with extensive length of road sections as the target of the project.
- As in the case of Grant Aid for Community Empowerment, local competitive bidding can be employed, allowing the use of technologies appropriate for local conditions, thereby reducing costs.
- Accountability on the use of the project fund can be secured by establishing a project implementation scheme that will enable timely monitoring of the project and the use of the loan proceeds.
- It would be possible to avoid complexities in administration of the project fund by using a simpler loan disbursement procedure and by employing an implementation scheme with strong monitoring capabilities that can well manage the procedure.

Potential issues on the use of a project loan may include:

- Generally, a project loan is provided for (relatively) large-scale projects including cases where the project is composed of sub-projects whose overall size is (relatively) large. It would be necessary to consider whether providing a project loan is appropriate for the rural road sector in Tanzania where procurement lot size is generally quite small.
- The use of a project loan may not be desirable if it requires all of the project components to be specified in the loan agreement. It would be desirable to use a form of assistance that allows certain degree of flexibility during project implementation which would be needed in assisting the sector.

6.2 Basket Fund Approach

Some development partners including DANIDA and NORAD provided financial assistance for the road sector in Tanzania through the established funding systems as well as the support to establish or improve these systems. This type of assistance may be called "Basket Fund Approach", compared with the project-type assistance that is a major type of Japan's financial assistance to infrastructure development in developing countries. In this section, the experience of DANIDA and NORAD is reviewed to draw lessons that may be useful to consider an effective way of assisting the rural road sector in Tanzania.

6.2.1 Funding through the Road Fund

DANIDA is one of the development partners that actively assisted the rural road sector through the Road Sector Programme Support (RSPS) as well as the implementation of associated projects. Under this assistance, DANIDA utilized the existing Roads Fund system (described in section 3.3.3) to finance the earmarked projects. As shown in the table below, DANIDA allocated 1,714 million Tanzanian Shillings for rural road development in fiscal 2008/09 using this mechanism.

Table 6-1: Fund Allocation from DANIDA in FY2008/09

Revenue Source	Allocation to Implementing Agencies (Million Tsh)				
	TANROADS	PMO-RALG	MOID (MOW)	RFB	TOTAL
Roads Fund	136,469	64,985	15,163	1,857	218,474
Special Allocation	14,002	4,601	0	0	18,603
DANIDA's RSPS	20,850	1,714	0	50	22,614
TOTAL	**157,319**	**66,699**	**15,163**	**1,907**	**259,691**

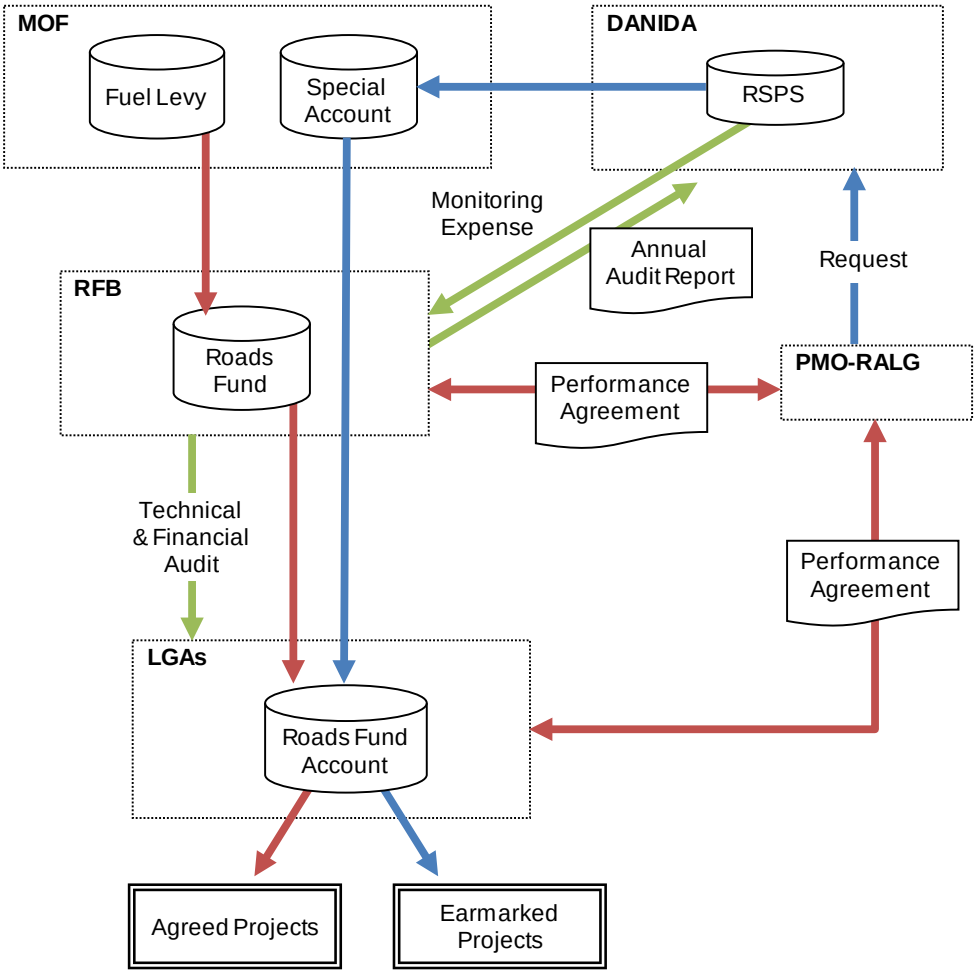
Source: Annual Report 2008/2009, Roads Fund Board

(1) Flow and Process

The funding flow and its process are summarized in Figure 6-3 and Table 6-2. The blue lines in Figure 6.2 indicate the process related to the fund from DANIDA. First, PMO-RALG compiled the requests made by LGAs and proposed the projects to be funded by DANIDA to the Programme Steering Committee that was composed of DANIDA, RFB and other relevant agencies. Based on the proposal, the Steering Committee decided the earmarked projects for DANIDA funding, and then the Parliament approved the budget plan of the RFB including the projects to be financed by DANIDA. DANIDA disbursed the fund to a special account opened by MOF, which was then directly transferred to the Road Funds accounts of LGAs following the disbursement schedule of the Roads Fund.

Although the DANIDA fund was mixed with the fund from the RFB (red lines) in the accounts of LGAs, the projects to be financed by DANIDA had already been decided in the process above, and were clearly specified in the Annual Performance Agreements made by the RFB, PMO-RALG and LGAs. Because of this procedure, DANIDA-funded projects could be clearly identified; in fact, DANIDA provided fund for the projects that were specified for DANIDA funding. In this sense, this method has a feature of project-type financing as well.

It should be noted that the Annual Performance Agreements specified the road sections and the type of works (rehabilitation, spot improvement, etc.) for the projects for DANIDA funding although further specifications were not put on the Agreements. LGAs as implementing agencies were able to decide other detailed conditions by themselves (including the use of LBT) in accordance with the ordinary Roads Fund rules.



Source: JICA Survey Team

Figure 6-3: Financial Flow through the Roads Fund

Table 6-2: Funding Process through the Roads Fund

Stage		Process
Stage 1 Budget Planning	(1)	Budget request for necessary works from LGAs to PMO-RALG
	(2)	Budget request from PMO-RALG to RFB and DANIDA
	(3)	Negotiation/Coordination among the stakeholders
	(4)	Parliament's approval for RF budget
	(5)	Performance agreement between RFB and PMO-RALG
	(6)	Performance agreement between PMO-RALG and LGAs
Stage 2 Budget Distribution	(7)	Distribution of fuel levy and other budgets from MOF to RFB
	(8)	Distribution of RF from RFB to LGAs' RF account/ distribution of DANIDA budget to LGAs' RF account
Stage 3 Execution and Monitoring	(9)	Disbursement for actual road works by LGAs
	(10)	Financial and technical audit for executed projects by RFB
	(11)	Submission of annual audit report to the Parliament and DANIDA

Source: JICA Survey Team

(2) Monitoring

The monitoring system established for the Roads Fund was also applied to DANIDA-funded projects. Based on the Memorandum of Understandings, DANIDA also financed part of the administration cost of the RFB required for monitoring the operation of the fund. The RFB conducted financial and technical audit and submitted the annual audit report to the funding bodies including DANIDA. Importantly, for the projects funded by DANIDA, a separate chapter/volume was prepared in the annual audit report. While DANIDA financed part of the RFB's operation, its assistance did not include the procurement of consulting services or dispatching of consultants/advisors to supervise actual road works; council engineers were in charge of the supervision of the works.

6.2.2 Funding through LGTP

Financing the LGTP activities was supported by some development partners including DANIDA and NORAD as well as the Government of Tanzania. As described in section 2.3.2, one of the strategies of the Programme was to use existing government institutions and procedures; accordingly, external support from development partners was pooled or organized as budget support and was channelled through the Ministry of Finance. Such arrangement aimed to remove the distortions caused by support of development partners to specific projects and programmes in accordance with a Joint Assistance Strategy (JAST) and TSIP framework.

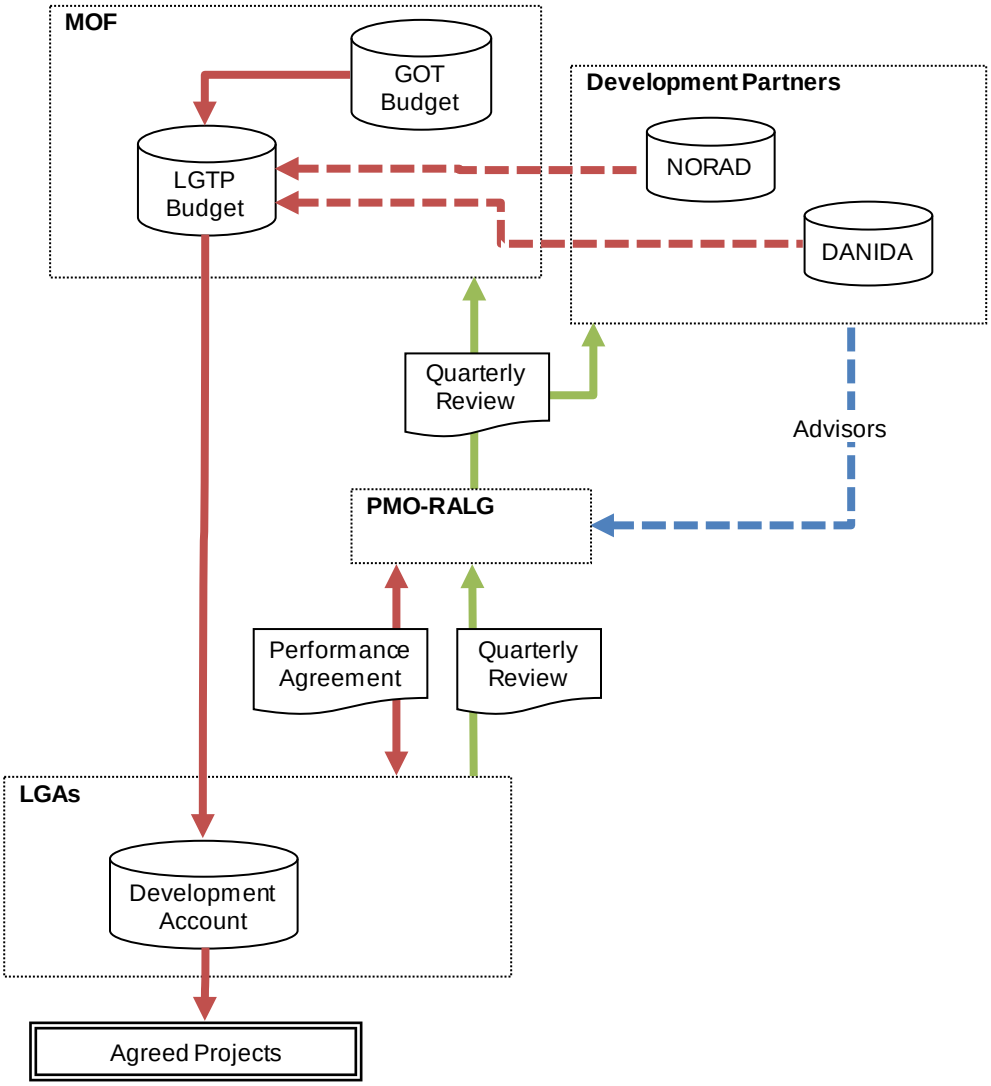
(1) Flow and Process

Following the existing funding procedures of the government, LGTP employs a simple process to finance the Programme as shown in Figure 6-4 and Table 6-3. The projects to be implemented under LGTP are specified in the Annual Performance Agreements that are entered into by LGAs and PMO-RALG after the budget requests from LGAs are reviewed. These projects are financed with the fund coming from the LGTP budget of the Ministry of Finance. The fund from development partners is transferred to the Ministry of Finance and is mixed with the fund from the Government of Tanzania. LGAs receive the fund to implement the LGTP projects from MOF.

The use of funds provided by development partners for LGTP has not been specified. Road sections and type of works of the projects to be implemented under LGTP are requested by LGAs to PMO-RALG which then reviews those requests. Once the Performance Agreement that specifies the LGTP projects is made between PMO-RALG and LGA, each LGA decides on the details of those projects and carries out the works. Development partners are not involved in specifying the use of the LGTP fund.

NORAD and DANIDA financed LGTP activities through this mechanism. However, NORAD terminated the support at the end of FY 2007/08 and DANIDA's support stopped at the end of FY 2010/11. Since then, these development partners have shifted their focus to the General Budget Support. This shift is because of the change in the development partners' global strategies toward achieving the efficient use of limited budgets[20] as well as the government's intention to streamline the administration of public finance.

[20] DANIDA has withdrawn from grant assistance to rural road sector but provides loan (with credit) to a trunk road project that can expect higher economic viability.



Source: JICA Survey Team

Figure 6-4: Financial Flow of LGTP

Table 6-3: Funding Process of LGTP

Stage		Process
Stage 1 Budget Planning	(1)	Budget request for necessary works (work plan submission) from LGAs to PMO-RALG
	(2)	Budget approval after coordination
	(3)	Performance agreement between PMO-RALG and LGAs
Stage 2 Budget Distribution	(4)	Distribution of the fund from MOF to LGAs' account
Stage 3 Execution and Monitoring	(5)	Execution of actual road works by LGAs
	(6)	Submission of quarterly review from LGAs to PMO-RALG in association with RS engineers
	(7)	Submission of compiled quarterly report by PMO-RALG

Source: JICA Survey Team

(2) Monitoring

Monitoring of the activities under LGTP follows the current system of the government's progress review which requires quarterly reporting. For the monitoring at the local level, council engineers are supported by engineers from the Regional Secretariats and submit review reports to PMO-RALG. PMO-RALG compiles these reports from LGAs into a report to be submitted to the quarterly review meeting at the national level. With this report, funding bodies including the development partners providing fund for LGTP can check the overall progress and achievements of LGTP.

It is considered that the use of consultants for supervising the implementation of LGTP projects has been less than originally recommended in the Programme.

(3) Activities of Advisors

In addition to providing financial support, NORAD and DANIDA dispatched advisors to Transport Infrastructure Unit (IDU at present) of PMO-RALG for capacity building activities. The advisors from NORAD supported the initial planning of LGTP framework as well as the preparation of related documents. One NORAD advisor also offered technical advice on the management system of roads and bridges until FY 2009/10. DANIDA dispatched three advisors in total for a decade of its road sector support in Tanzania until the end of FY 2010/11. The activities conducted by DANIDA advisors were almost the same as those of the NORAD advisors.

The advisers from both NORAD and DANIDA were not involved in determining the use of fund under the Programme. Their focus was on establishing the framework of the Programme and associated capacity building activities.

6.3 Assistance of Other Development partners to Rural Roads Development/ Maintenance

Other development partners are assisting, or plan to assist, the rural road sector in Tanzania including the EU, the World Bank and the USAID. The activities of their assistance that were identified during this study are briefly described below.

The EU plans to launch a road sector support programme comprising Sector Budget Support (SBS) and area-based projects within this financial year. The SBS will be assisting the whole transport sector with its assistance to the rural road sector expected to be limited although the EU intends to support the improvement in the assessment system for rural road maintenance under SBS. On the other hand, the project-type assistance planned by the EU is expected to include the improvement of rural roads in focused regions using one third of the budget for this type of assistance. Currently, the upgrading of district and feeder roads totalling 250 km is planned in 6 LGAs located in Ruvuma, Morogoro and Iringa Regions. As part of the project component, technical assistance is planned to be provided for capacity building on road management at levels of PMO-RALG and LGAs.

The World Bank has been assisting a bottleneck study for the rural road network across the country. The study has identified thousands of bottlenecks, and their prioritization is expected to be finalized by 2013. Based on the priority list of the bottlenecks, the World Bank plans to finance part of the priority sections and other sections could be funded by other development partners. Funding mechanism to be used for this prospective financial assistance of the Bank has not been determined at the time of this study.

USAID has initiated "Feed the Future" Programme, a five-year programme which includes support for infrastructure improvement that can contribute to higher agricultural productivity. Rural roads in certain areas are also funded under the Programme, and USAID considers expanding the support for rural roads to broader areas.

AfDB and DFID have also shown interests to support the rural road sector, although their assistance to the sector has not been specifically planned.

7. Conclusion

Based on the findings obtained throughout this study, various important issues were identified which should be taken into account in devising an appropriate approach to assisting the rural road sector in Tanzania. This chapter summarizes these issues as well as provides recommendations on potential ways of assisting the sector.

7.1 Key Issues

Key issues identified in this study include the following:

- Assistance to development and/or maintenance
- Consideration of procurement lot size
- Procurement method
- Funding method and specification of target road sections
- Construction equipment/machinery
- Specification of LBT use, and
- Need for capacity development.

Each of these issues is described below.

7.1.1 Assistance to Development and/or Maintenance

As described in chapter 2, the Government of Tanzania places high priority on the development of rural road sector for poverty reduction while funding has been seriously lacking to meet the needs for both development and maintenance. In the policy dialogue with the Tanzanian government, it would be important to propose an increase in budget allocation to the sector, and at the same time, the provision of financial assistance to the sector would be highly necessary.

One fundamental question on potential assistance is whether it should be focused on development or maintenance of rural roads. Important issues related to this question would include: the current budget allocation, capabilities of LGA personnel, and impacts on contractors as described below.

(1) Issues on Current Budget Allocation

The country's overall budget allocation to the road sector appears to have placed greater emphasis on maintenance than on development (though the allocation to development increased significantly last year). This trend also was evident in the districts interviewed during this study. Key issues related to this point are as follows:

- Uncertainty of funding for development: Compared with the budget for maintenance of rural roads, the allocation secured for development every year has been relatively limited. For the Roads Fund, only 10% of the total amount is allocated to development, which is further distributed to MOW and PMO-RALG, resulting in a limited amount allocated to rural roads. Although the LGDG is for development, its distribution across sectors depends on the coordination within each LGA, leaving the allocation to rural roads development uncertain. There is also uncertainty in the amount of budget secured under the LGTP as it depends on funding from development partners as well as from the government. In fact, the amount allocated to rural roads last year under the LGTP decreased considerably compared with those in previous years.

- Lack of funding for road sections in "poor" condition: The budget for development received by LGAs tends to be allocated with priority to roads that are heavily travelled and/or located in urban areas, rather than to rural roads including district and feeder roads[21]. As a result, the LGAs' budget for rural roads has been allocated mostly to maintenance. Moreover, most of the budget for rural roads' maintenance appears to be used for "fair" or "good" road sections to maintain their current conditions. Consequently, the conditions of "poor" sections can hardly be improved.[22].

- Potential increase in lifecycle cost: More than 90% of the Roads Fund that accounts for about 80% of the total budget for rural roads is designated for maintenance. However, according to the LGA personnel interviewed in this study, the amount they receive is only one-third to one-fourth of the amount that is judged necessary. Accordingly, each maintenance work should require durability of three to four years in order to maintain or improve driving conditions given the budget actually allocated, but it is extremely difficult to keep earth roads free of maintenance that long. For sustainable development of rural roads, it is necessary to effectively select the sections requiring improvement and upgrade them to gravel or paved roads so that their lifecycle costs would be lowered.

(2) Capabilities of LGA Personnel

The maintenance works undertaken by LGAs are mostly "routine maintenance" treated as recurrent expenditure; small scale and only requiring low technology[23]. Conducting only routine maintenance does not lead to enhancing the technical expertise of concerned LGA personnel, resulting in preventing sustainable development of rural roads.

- Technical expertise of LGA personnel: Concerned LGA personnel do not have technical expertise sufficient to carry out an appropriate level of quality control, potentially increasing the lifecycle costs of rural roads, which would be lower if roads were properly maintained with a good quality control system. Some personnel actively take training offered at colleges, but lack practical or on-the-job training through project experiences. Securing not only the budget for maintenance such as the Roads Fund but also increasing budget for development would contribute to lowering the lifecycle costs of rural roads. This is important also for enhancing the practical, technical capabilities of LGA personnel including the ability to make engineering judgments.

- Ability of LGA personnel to evaluate contractors: Lack of technical capabilities on the part of LGA personnel also tends to cause inappropriate evaluation of contractors during the procurement process where financial and technical capabilities of the bidders are evaluated in accordance with the predetermined tender procedures. Partly because of this, some capable contractors avoid bidding for the works procured by LGAs, which in turn leads to lowering efficiency in construction supervision undertaken by LGA personnel.

- Capability in project management: The period for the maintenance work of LGAs is relatively short, mostly three to six months. Both LGA personnel as well as contractors lack the experience in large-scale projects, and have difficulties in improving their capability in project management. In addition, focusing on small-scale works provides

[21] In the period 2007/08–2010/11, 74% of the budget for development under the Roads Fund was allocated to the development of urban roads. Source: IT Transport Ltd., "Preparation of LGTP Phase 2, Issues Paper, Draft," December 2011 (DFID funded preparation of LGTP phase 2 for PMO-RALG).

[22] According to the DFID funded above report, the total length of "good" sections of rural roads increased from 14% to 23% in 2007–2011 although the proportion of "poor" sections remained at 45% during this period.

[23] Note that periodic maintenance that is larger scale in the maintenance done by districts is treated as capital maintenance, not recurrent maintenance, in the expenditure. Source: Annual Performance Agreement for District, Urban and Feeder Road Maintenance Works FY2011–2012.

LGA personnel with few opportunities to improve efficiency in road management through achieving economies of scale.

(3) Impacts on Contractors

The current situation of the rural road sector described above leads to the following undesirable consequences on the part of contractors.

- Technical capabilities of contractors: As mentioned above, the current road works of LGAs only require low technology, and LGA personnel lack the capability to evaluate technical levels of contractors. Consequently, contractors tend not to be motivated to enhance their technological levels, hampering the development of the industry.

- Lowering of utilization of equipment/machinery: The road budget of each LGA is small, and is distributed relatively equally within LGAs, leading to scattering of short-term works geographically. This forces contractors to frequently move their construction machinery, resulting in higher transport costs. In addition, longer transport time lowers the utilization time of machinery, leading to higher rental costs. Increasing the procurement lot size as well as implementing longer-term works through more focused budget allocation will reduce the machinery cost that accounts for a significant portion of the construction costs, thereby contributing to efficient use of the fund for road works.

- Creditworthiness of contractors: Since locally based contractors, especially those of lower classes, do not own large-sized assets, they face worse loan conditions from commercial banks and have difficulty in obtaining bid and advance payment bonds. If these lower-class contractors can engage in longer-term works, their creditworthiness will be enhanced, enabling them to receive better loan conditions and bonds. This will also contribute to reducing construction costs.

Taking into account all of these issues above, the current situation where rural road works are mostly focused on small-scale maintenance not only makes it hard to improve rural roads that are largely in poor condition, but is also likely to leave these issues unsolved including those faced by local road administration and contractors.

In considering financial assistance to rural roads in Tanzania, it would be important to assess the government's budget allocation to maintenance including its efforts to expand the revenue base of the Roads Fund and to consider supporting development works that would contribute to lowering the lifecycle costs of rural roads as well as reducing the sections in poor condition. Moreover, supporting development while recognizing the importance of maintenance is better suited to Japan's financial assistance that is unlikely to be provided for funding recurrent costs. In order to maintain the improvement effects of development works on road conditions, it would be necessary to keep encouraging the Tanzanian government to secure reasonable amount of budget for maintenance of rural roads.

7.1.2 Consideration of Procurement Lot Size

- Current contract lot size: In the interviewed LGAs, the road works procured are mostly maintenance works for which the largest contracted amount is as high as 200 million Tsh, with most of the lots substantially smaller. If financial assistance of around 20 billion Tsh is provided for maintenance works implemented by LGAs, the quantity of contract lots would exceed one hundred, potentially reaching a lot more. If typical project-type assistance is used for such financial support, the quantity of procurement lots should be reduced through "packaging" or consolidating several (or more than ten) lots. But even

with such measures, the management of procurement and project implementation would still be quite complex.

In relation to contract lot size, there are two different movements at a local level: one is to increase the size thereby making local governments' works more attractive to contractors, while the other is to reduce it so that locally based small-sized contractors can have opportunities to win contracts from local governments. Determining appropriate size of contract lots is among the areas where council engineers are required to improve their relevant expertise.

- Case of assisting development: The average size of procurement lots for development works should be much larger than that for maintenance. Although we could not obtain sufficient information on development works from the interviewed districts as they mostly focus on maintenance as well as information on works other than those for the Roads Fund as it is not well kept, one good example is the maximum size of the TANROADS regional office contracts, which was about one billion Tsh. Assuming that financial assistance of about 20 billion Tsh is provided for a group of subprojects costing one billion Tsh each, the number of contract lots will be 20, which is considered manageable in terms of procurement and fund disbursement in case of certain form of project-type assistance (e.g., grant)[24].

- Periodic maintenance: The maintenance works conducted by LGAs include not only ordinary type of maintenance (routine maintenance) that is small-scale and only requires low technology, but also larger-scale periodic maintenance that is undertaken at intervals of several years. The contract lot for periodic maintenance can be larger than that for paving works.

  However, the way periodic maintenance is conducted does not seem quite appropriate. In one of the interviewed districts, periodic maintenance was budgeted for sections even longer than the total length of paved roads. Also, large-scale maintenance of earth roads is conducted without changing the surface type. This kind of works would not be quite appropriate from the viewpoint of reducing lifecycle costs. It would be desirable to use the Roads Fund more flexibly such as allowing paving works (e.g., with gravel) with the budget for periodic maintenance. Assisting periodic maintenance using the Roads Fund system may be one potential form of financial assistance to the rural road sector.

- Promoting joint venture (JV): Raising the procurement lot size would increase the number of small-sized contractors who find it difficult to bid on their own. Those contractors may also be excluded by regulation. For example, the contract amount of one billion Tsh in the TANROADS case above exceeds the limit for a single contract for class 5 contractors or below[25] who are the major players in rural road works. It is therefore necessary for LGAs to consider allowing joint venture (JV) that is currently promoted by the Government of Tanzania.

7.1.3 Procurement Method

- Local competitive bidding: All of the rural road works procured by LGAs are undertaken by local contractors. Considering the size and the technological level required for the works

[24] As one example, for Nepal Community Access Improvement Project assisted with JICA's Grant Aid for Community Empowerment as described in section 6.1, the number of procurement lots was 12 according to its preparatory survey report.

[25] For class 5 contractors, the upper limit for any single contract of civil works is 750 million Tsh according to the classification determined by CRB.

of LGAs, the use of local competitive bidding including short-listing of local contractors is appropriate when assisting road projects implemented by LGAs. The use of local contractors is expected to contribute to enhancing their capabilities in addition to improving the condition of rural roads.

7.1.4 Funding Method and Specifying of Target Road Sections

- Use of Roads Fund system (DANIDA's method): As described in section 6.2.1, under DANIDA's method of using the Roads Fund system, the projects financed by DANIDA had been specified in advance and the fund for those projects was transferred directly from the MOF's special account to LGAs' Roads Fund accounts. Although DANIDA's funds were mixed with funds from other sources in the LGAs' accounts, its use should have been able to check, albeit indirectly, based on the progress of the target projects and reporting of payments to contractors. In addition, since DANIDA's funds did not pass through the Roads Fund account managed by the RFB, it should have been possible to confirm how much of DANIDA's funds were deposited in the accounts of the target LGAs.

  Precisely speaking, however, we may be able to say that DANIDA's funds were used for the target projects only if the funds in the LGAs' accounts have been used up entirely. In case there is remaining balance in the accounts after the target projects as well as the payments to contractors have been completed, it cannot be confirmed that the remaining amount does not include DANIDA's funds or if it was all used. Once certain funds from one source are mixed with fund from other source(s) in the same account, it is not possible to determine which fund was used for certain projects.

  DANIDA's funds are thought to have been used mostly for maintenance as this method utilized the Roads Fund system. Applying the same method to a funding system for development, it is possible to specify target road sections to be developed and provide financial assistance for those sections. It can be conceived that the funds provided can be managed relatively easily.

- LGTP system (NORAD's method): As described in section 6.2.2, NORAD fund provided under the LGTP was mixed with funds from other sources at the national level, and projects to be funded by development partners including NORAD were not specified. On the other hand, since the LGTP fund can be used for development, it may be possible to finance development with specifying target road sections by applying the method adopted by DANIDA with the Roads Fund system; the use of the funds may also be checked, albeit indirectly, based on the progress of target sections and reporting of payments to contractors. (Note, however, that as in the case of DANIDA's method, it is not possible to fully identify the use of the fund as long as it is mixed in accounts with funds from other sources.)

- Full identification of fund use: As mentioned above, if the basket fund approach is employed, we cannot say that it is possible to fully identify the use of the fund even though target road sections are specified in advance and the progress in implementation and the records of payments to contractors are precisely checked. It may be possible to say, though still not fully, that the fund provided was used for the target projects once these projects are completed (including payments) and there is no remaining balance in the account where the assistance fund was deposited along with funds from other sources.

  In order to fully identify the use of funds, it is necessary to use a dedicated account for the fund assistance to be spent on target projects. On the other hand, the Tanzanian government is trying to reduce the number of bank accounts at a local government level, and identifying the use of funds by opening a dedicated special account may not be a realistic approach.

7.1.5 Construction Equipment/Machinery

- Equipment/machinery owned: According to the interviewed district personnel and contractors, there has been a lack of construction machinery used for rural road works. On the other hand, there are contractors who own machinery including large-sized ones. In case machinery is provided to concerned public entities including LGAs, TANROADS and TEMESA, they must hire operators and technicians. However, none of the organizations interviewed during this study has intentions to own machinery and has the capability to maintain them properly.

- High borrowing rates: While the demand for construction machinery is quite high, financially weak contractors are unable to borrow from banks or are obliged to accept high borrowing rates, making it hard for them to invest in machinery.

- Utilization of equipment/machinery: As long as LGAs continue to focus on small lot works requiring machinery use that are scattered geographically, contractors are unable to reduce time and cost for transporting machinery, with its use remaining inefficient. This also keeps rental costs high and prevents contractors from improving their profitability, further making it difficult to invest in machinery.

One previous study[26] reports successful cases of LBT equipment provision by DANIDA to Mufindi and Iringa Districts while the regions and districts interviewed during this study are not well prepared to receive such assistance; there are also contractors attempting to acquire machinery with their own efforts. It is, therefore, necessary to take account of local conditions in considering provision of construction machinery with assistance. Another approach would be to assist its acquisition indirectly with measures such as increasing procurement lot size that will make machinery use more efficient, conducting appropriate evaluation of contractors, and expanding their opportunities to engage in large-scale works, all of which are expected to strengthen contractors' balance sheet, thus enhancing their investment capacity.

7.1.6 Specifying of LBT Use

- Cost of LBT use: There is wide variation in the prices of inputs used for rural road works including labour, materials and equipment depending on factors such as local conditions and time periods (e.g., harvesting season or not). It is, therefore, necessary to recognize that the cost of LBT use changes depending on various factors including geographical areas, road sections and time periods.

- Technical issues of LBT: One technical issue related to LBT is that council engineers generally lack capabilities to adequately select the use of LBT or EBT (equipment-based technology) for works to be undertaken. While ATTI provides training on LBT, the expertise in its application is not sufficiently developed, which is considered one of the factors preventing its wide use in actual works.

- Job creation with LBT use: LGA personnel interviewed recognize certain degree of job creation effects of LBT use. For example, LBT is favoured for works in remote areas where transporting machinery is costly, thus making the use of labour more economical. The use

[26] JICA, Detailed Planning Survey for Rural Roads Maintenance System Development Project in Tanzania, 2011 (in Japanese).

of LBT would be promoted as decision makers increasingly recognize its job creation effects and positive impacts on local economy.[27]

7.1.7 Need for Capacity Development

- Lack of capability of LGA personnel: The size of procurement lots and the level of required technology are quite different between routine maintenance and development works procured by LGAs. If development works are implemented with financial assistance, capacity development activities would be needed at each stage of project implementation. The areas where LGA personnel would particularly lack capabilities include those in the table below.

Stage	Capabilities required for increasing procurement lot size	Capabilities required for implementing works of higher technological level
Planning	• Planning of optimal implementation schedule • Preparation of appropriate tender documents • Increased importance of environmental and social consideration	• Determination of appropriate upgrading • Rational selection of materials to be used • Preparation of appropriate tender documents
Procurement	• Ensuring transparency in selection of contractors	• Ensuring fairness in evaluation of contractors
Implementation	• Inspection of quantities done for payment • Developing traceability for maintenance (recording history of construction works)	• Quality inspection to be done more frequently • Specialization of quality inspection items
Maintenance	• Management of construction records and their use	• Specialization of inspection items

- Lack of equipment for quality control: Currently, LGA councils own almost no equipment for quality control. There are cases that proof rolling is conducted with construction vehicles to check the extent of rutting while quantitative inspection is not carried out. It is considered necessary to provide inspection equipment for LGAs along with the provision of consulting services.

- Need for overall project management: In formulating a project composed of subprojects located in LGAs across the country, the project plan should include establishing an implementation scheme that can centrally and collectively manage those subprojects for smooth project implementation and fund management.

7.2 Recommendations on Potential Financial Assistance

Considering the key issues described above and results of various studies by JICA and others, we recommend the following points as a desirable approach of providing financial assistance to the rural roads sector.

[27] Regardless of the use of LBT or EBT, job creation among unskilled workers can also be promoted by procuring such works as crushed stone processing and block making that require labor intensive work. Such procurement not only contributes to job creation, but also can shorten construction periods using the products from such procurement.

7.2.1 Policies to Cope with Lack of Rural Roads Development/Maintenance Budget

(1) Strengthening of Efforts toward Prioritization in Budget Allocation through Policy Dialogue

The Tanzanian government has allocated a relatively high portion of its development budget to the transport sector. However, most of the transport sector's development budget has been allocated to trunk roads and distribution of the budget toward rural roads sector is significantly low. The main reason why the proportion of rural roads in "poor" condition has not changed from 2007/08 to 2011/12 is thought to be the restricted development budget for the rural roads sector.

This situation is not consistent with Tanzanian policy documents and initiatives such as MUKUKUTA II and Kilimo Kwanza. Through policy dialogue with the Tanzanian government as well as collaboration with other development partners supporting the transport sector, it would be necessary to make continuous requests to increase the development budget allocation to the rural roads sector.

As for the Roads Fund, which enjoys a relatively stable budget allocation, its budget size barely reaches 50% of the necessary maintenance needs. Given this situation, the Roads Fund Board has reviewed fuel tax exemption for the mining sector and is considering expanding the funding sources. These points need to be confirmed in the policy dialogue along with monitoring toward realization of increased funds.

(2) Project-based Financial Assistance

Given the traffic volume of rural roads, low-cost paving or gravel paving suffices for pavement, and in most cases Tanzanian contractors are sufficiently capable of constructing the necessary pavement structures. Along with improving the condition of rural roads through financial assistance, it is appropriate to use an assistance scheme that involves the local contractors in order to improve their capabilities.

1) Review of Scope Targeted for Cooperation

In implementing project-type financial assistance, it is necessary to determine the target scope in the preparatory study. Conducting a strategic review is important in selecting the regions or road sections to be targeted for the project from the vast expansion of rural roads in the entire country of Tanzania. The results of World Bank's Bottleneck Study are assumed to be relevant and useful in considering the target scope. In collaborating with other development partners, one option would be to support rural roads in Morogoro, an important region for SAGCOT where USAID is planning to expand its assistance as part of its "Feed the Future" programme, which would contribute to agricultural development of the region.

2) Partnering with JICA Programmes

In order for JICA to strategically develop project-type financial assistance, it is desirable to partner with other assistance programmes being implemented or planned by JICA in the road sector as well as other sectors where assistance programmes are being implemented.

In the road sector, project-type financial assistance in the target regions of "Rural Roads Development Capacity Building Project" (Iringa and Dodoma Regions) that will commence in April 2012 would contribute to further strengthening as well as horizontal development, utilizing the developed capacity of the LGAs and contractors. Furthermore, assisting rural roads development in LGAs located along trunk roads in regions where JICA Yen Loan project is

implemented is expected to widely spread benefits of trunk roads improvement to the affected regions.

In terms of relationships with other sectors, implementing rural roads development assistance in regions covered under JICA's cooperation programmes in agriculture and industrial sectors is expected to facilitate logistics and increase contributions to economic development. In addition, enhanced improvement of livelihoods can be expected by working in the same regions as the ones where assistance is implemented in social sectors such as water, health, and education.

3) Capacity Building Viewpoint through Financial Assistance

In developing programmes regardless of regions, results of the financial assistance should not be confined to progress of rural roads development/maintenance. Instead, it is desirable to effectively combine soft components and technical cooperation projects so that local engineers, contractors and policy makers should be involved to achieve capacity building throughout the programme implementation process.

(3) Budget Support

Given the current situation of absolute lack of development and maintenance funds in the rural roads sector, budget support approach should be considered. For budget support, it is desirable to distribute funds directly to each LGA using the existing mechanisms to minimize complications and confusion in procedures in the field (each LGA).

Utilization of the already established Roads Fund's system would be appropriate for the flow of funds from the national government to LGAs, due to the following reasons.

- The LGAs have been instructed to limit the number of bank accounts; therefore, opening bank accounts to accommodate additional funds flow for the LGAs is difficult.
- In the existing framework of the Roads Fund, every year a Performance Agreement is signed between the Roads Fund Board and PMO-RALG as well as between PMO-RALG and LGAs, and yearly activities are monitored according to the said Agreement.
- The Performance Agreement lists the targeted projects for each fiscal year and it is possible to include target projects for budget support as well as development projects.
- The Roads Fund Board conducts technical and financial monitoring, and monitoring of projects subject to budget support is possible using this mechanism.

In order for budget support to be utilized appropriately, effectively and efficiently, it is vital to carry out capacity building at the level of LGAs, the implementing bodies of road development and maintenance works. Therefore, checking the capacity of the subject LGA at the selection stage is important in implementation of budget support.

(4) Secondary Effects of Increased Budget

Effects of an increase in the size of funds in the rural roads sector through policy dialogue, enlargement of scale of the Roads Fund, and project/programme-based financial assistance not only lead to direct effects of improvement in the condition of rural roads, but also further contribute to the rural roads sector through secondary effects such as fostering and encouraging the road construction industry.

1) Vitalizing Road Construction Industry in the Rural Regions

Stable allocation of funds to the LGAs for the rural roads sector is expected to lead to stable contract orders of the LGAs for road construction. Furthermore, diversification of funding

sources is expected to contribute to evenly allocating funds around the year to the LGAs; usually the government fund was previously concentrated in the second half of each fiscal year. Should contractors' procurement process be conducted year round along with equalization of fund allocation, the rural roads construction industry, which used to be seasonal, could become a year-round industry. A healthy environment of competition among contractors can be established, expected to lead to vitalization of the road construction industry. Vitalized construction industry in the rural regions would not only circulate to better quality, effectiveness and economy of rural roads development and maintenance, but also develop the local economy.

2) Development of the Consultant Market

With development of the construction industry, business opportunity for design and construction supervision consultants is expected to be created. Currently, design and construction supervision work is done by the council engineers themselves under a restricted budget. As the number of works increases from increased budget for the rural roads sector, design and construction supervision by the council engineers will become difficult; therefore, utilization of external consultants will be essential. If stable business opportunities are provided to the design and construction supervision consultants, the consultant industry would grow, leading to realization of effective and efficient works management by the council engineers.

7.2.2 Countermeasures for Council Engineers' and Contractors' Lacking Capacity

As this study has shown, one issue in rural road works is the lack of capacity of both council engineers expected to take on the central role in rural road works and contractors who are to be responsible for implementation of rural roads construction.

In the last five years from 2006 to 2011, JICA has implemented a Technical Cooperation Project for Capacity Strengthening of LBT for ATTI. Starting in April 2012, JICA will implement "Rural Roads Maintenance System Development Project" for four years, through which improvement of capability of mainly council engineers and contractors as well as PMO-RALG and RS engineers is anticipated.

(1) Capacity Building of Council Engineers

1) Planning Ability from the Medium and Long-Term Perspective

In the current situation of insufficient budget distribution to accommodate needs, optimal utilization of limited budget to maximize efficiency becomes very important. It is essential to undertake planning from the medium and long-term perspective based on a predicted amount of future budget allocation to maintain roads in relatively good condition (rated "good" or "fair"), while improving the roads in "poor" condition in the road network.

2) Improving Road Construction Contracts

Allocation of the development budget from the central government to the LGAs tends to concentrate in the second half of a fiscal year. As a result, procurement procedures of contractors also concentrate in the second half of a fiscal year. Procurement procedures are conducted in accordance with public procurement regulations, so certain period of time is needed from budget allocation to actual construction implementation. As a countermeasure, some LGAs have devised to minimize the lead time from allocation to work commencement by issuing the "Work Order" to the contractor with whom the yearly maintenance management contract was signed, as soon as the budget is allocated.

In addition, application of Performance Based Contract and Area Based Framework Contract used in DfID's AFCAP (African Community Access Programme) should be considered to level the amount of work year-round.

3) Adoption of Appropriate Technology

In the rural roads sector, though there are many cases where adoption of LBT is appropriate, in practice, a procurement process specialized for LBT is not used and EBT is implemented as a result.

As effects other than road maintenance itself are expected from adoption of LBT, such as creation of job opportunities, spillover effects on the local economy and fostering of a sense of ownership, it should be actively utilized when LBT adoption is recognized as appropriate.

To proceed with utilization of LBT in the field, the following measures would be necessary: (i) improvement of planning ability that includes establishing criteria for LBT/EBT selection and appropriate technology selection; (ii) development of awareness among policy makers by conducting activities to overcome the preconceived idea that LBT is inferior in quality; and (iii) improvement in capability to supervise road construction applying LBT.

Furthermore, the construction period using LBT is usually longer than that of EBT, but intensive input of labour could shorten the construction period. In addition, considering the time needed to mobilize EBT equipment from distant locations, LBT does not necessarily require more time.

4) Application of Effective Construction Supervision Methods

One of the large burdens for council engineers is construction supervision work. Implementing appropriate construction supervision is necessary for handover of a good quality road from the contractors and thus reducing maintenance costs. Besides, developing contractors with appropriate technology could be expected. Therefore, efforts to introduce efficient and effective construction supervision methods as well as equipment maintenance and capacity building are required.

For effective construction supervision, utilization of external consultants is an option, but it is more practical to first work on capacity building of the council engineers, and as stated previously, to formulate the consultant market in order to gradually shift to a system that utilizes external consultants.

(2) Capacity Building of Contractors

Apart from increasing opportunities to participate in training, providing opportunities for continuous road construction is important for building capacity of contractors. Therefore, efforts by council engineers toward road construction industry development are indispensable; realization of industry development is assumed to have desirable effects for council engineers themselves, such as reduction in both the construction supervision burden and maintenance management cost.

Should contract orders for road construction be issued continuously and stably, contractors would be more motivated toward human resources development and equipment investment, which is expected to lead to capacity building of contractors.

To increase capacity in LBT, it is important that construction works specializing in LBT be ordered in a stable manner by the council engineers. Because registration with the CRB as LBT

contractor is required to participate in tenders specializing in LBT, contractors would be motivated to participate in training at ATTI which is necessary for CRB registration. Furthermore, if stable opportunities for LBT works can be obtained, more LBT contractors are expected to invest in light equipment.

(3) Capacity Building of PMO-RALG and Regional Secretariat Engineers

PMO-RALG, the ministry responsible for rural roads development and maintenance, and RS engineers both have important roles in knowledge and technology development, nationwide and intra-region, respectively. However, the actual situation is that human resources are limited compared to the vast scope of jurisdiction. Since there are existing information sharing frameworks such as annual engineer conferences at the national level and intra-region engineer meetings, effective sharing of information is possible if there are tools such as guidelines or case examples for sharing.

As RS engineers also play a role of monitoring the status of works implementation in the LGAs within the regions, capacity building at the LGA level is expected to transition their roles from monitors to their original roles as facilitators.

7.2.3 Countermeasures to Lack of Road Construction Equipment

As this study has shown, one of the issues toward smooth implementation of rural road development/maintenance work is the lack of road construction equipment. Lack of equipment obstructs healthy competition among contractors and causes the problem of excess cost and time to transport equipment from distant locations. In addition, the lack of light equipment for LBT, which is crucial to constructing roads of appropriate quality with LBT, is an inhibitory element to application of LBT technology.

Some measures to counter these equipment-related issues are as follows.

(1) Provision of Equipment for a Lease System Operation by the Public Sector

In this study, there seemed to be no public sector body that was motivated to possess equipment for rural roads development/maintenance, but in Mufindi and Iringa Districts, visited in the previous study[28], LBT technology has been successfully utilized continuously by leasing formwork to contractors provided by a DANIDA project for building pedestrian rollers, towed graders and forms for building pipe culverts. Given the situation that equipment maintenance is outsourced externally without problems, establishment and operation of a lease system by LGAs seems possible for LBT light equipment.

However, in providing equipment, it is essential to check the maintenance system and implement technical assistance for a lease system operation. Furthermore, this study found that there was a situation where TEMESA, provider of equipment maintenance and management services, does not possess spare parts, leading to prolonged repair periods. Securing spare parts should be the responsibility of the equipment owners; repair time could be shortened by fulfilling that responsibility.

(2) Provision of Equipment for Low-cost Sale to Contractors

In Food Security Project for Underprivileged Farmers (2KR), one of Japanese Grant Aid scheme, agricultural machinery is procured by grant assistance for promotion of agricultural mechanization. In some cases, smooth transition to agricultural mechanization is aimed through

[28] JICA, Detailed Planning Survey for Rural Roads Maintenance System Development Project in Tanzania, 2011 (in Japanese).

sale of relevant machinery under favourable conditions for farm unions and farmers. Profit from the sale is reserved as counterpart funds to be used in agriculture related projects.

Following this example, promotion of owning equipment is expected by selling to contractors under favourable conditions the rural roads construction equipment procured with grant assistance. There are, however, issues to be considered including methods to reserve and manage counterpart funds and decision process for use of funds. Though this study did not cover such points to be considered, such approach may have potential as a measure for spreading of machinery ownership.

(3) Improvement of Access to Funds for Investment by Contractors

From interviews with contractors in this study, their strong motivation toward active investment in equipment for road construction/maintenance was confirmed. On the other hand, limited access to funds for investment in such equipment is an issue. Assistance to improve access opportunities to funds may be necessary. While there is assistance for fund access by CATA, the interview in the field revealed that in reality, fund access has been indicated as an issue. Considering the existing system and the terms and conditions for its usage, assistance that verifies and recommends a system that is easy to use for contractors is deemed possible.

7.2.4 Need for Partnering

It would not be possible for a single development partner to fully cover the entire country of Tanzania with many regions. Therefore, it is essential to cooperate with other development partners and the Tanzanian government to implement the aforementioned assistance plan. It is vital that assistance plans are consolidated into a programme and shared with the Tanzanian government and other development partners supporting the transport sector, to tackle the issues under common understanding and awareness with other stakeholders in the Tanzanian rural roads sector.

It has been decided that the EU develop technical assistance programmes for capacity building in the rural roads sector in Iringa, Ruvuma, and Morogoro regions in 2012, and collaboration with JICA projects is anticipated. Further partnering with the Tanzanian government as well as other development partners would need to be developed in the stage to expand outcomes of assistance by JICA and the EU to nationwide.