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Sub-theme: **Institutional capacity building for rural roads development and management**

Title: **Institutional Capacity Building in 11 Districts for Rural Roads Development and Management in Lindi and Mtwara Regions, Tanzania**

Keywords: **Rural roads development, Labour-based technology**

Abstract:

Effective institutional capacity building in Road Sector in Tanzania is very challenging especially in the promotion of affordable and appropriate technologies. This is because several projects carried out in this area have not led to sustainable results. The Road Rehabilitation and Maintenance project in Lindi and Mtwara Regions (RRMP) was uniquely designed to support district authorities to manage and maintain rural roads in a sustainable way.

During project implementation period, 1998-2002, eleven districts were gradually empowered to engage qualified key technical staff, set up proper planning and transparent procurement procedures. Appropriate techniques and technologies were identified and demonstrated. In private sector participation, nineteen Labour-based contractors were trained out of which fourteen were registered by the Contractors Registration Board. Following the emphasis and encouragement in women participation, six of the companies were established and run by women. In order to ensure the availability of suitable fleet of equipment for road works, an autonomous Equipment Hire Unit was established. A total number of 345 km were rehabilitated, out of which 112 km by Labour-based methods.

Despite the constraints, the overall project objective of supporting social and economic development and alleviation of poverty in rural areas in Lindi and Mtwara regions by capacity building and improving roads was fulfilled in short term perspective.

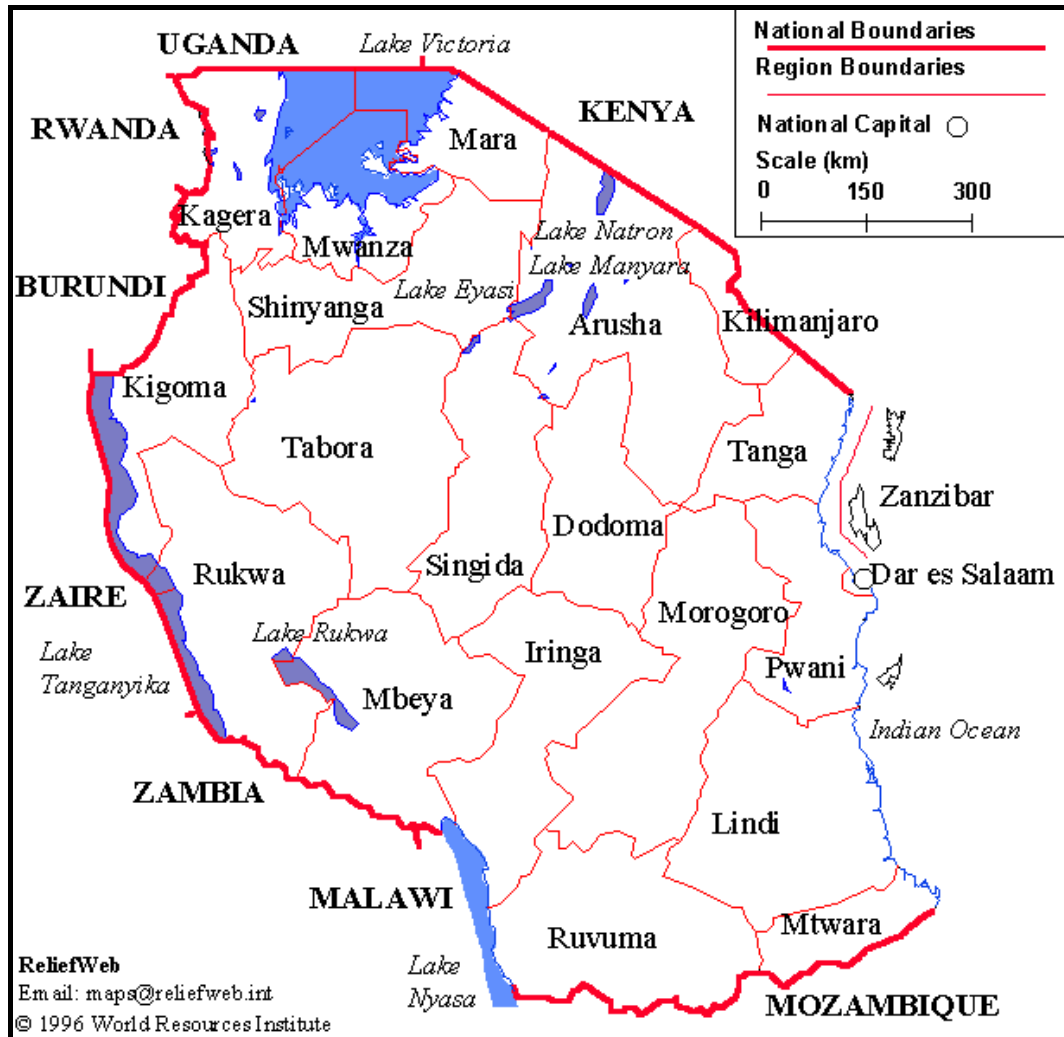
The achievements attained indicate that this approach is likely to ensure long-term sustainability for rural road infrastructure in the targeted districts. Hence the project will still be engaged in the monitoring phase to make sure that the momentum so far reached is not lost.

This paper will document the experiences gained and lessons learnt from the design and implementation of this project for sharing and possible further replication in other areas as well.

1 INTRODUCTION

1.1 INTRODUCTION

Road Rehabilitation and Maintenance project in Lindi and Mtwara Regions (RRMP) was executed within the period from 1st September 1998 to 31st July 2002. As shown in the map below, the regions are among the 21 administrative regions of Tanzania, bordering Mozambique and cover an area of about 84,000 km².



According to 1988 Population Census, the population of the area is approximately 2,1 million. Its economy solely depends on agricultural production, the main crop being cashew nut. Both regions are underdeveloped even in the context of Tanzania. This has been contributed by inefficient transport system and inadequate road infrastructure. Most of the road network is in bad condition due to lack of maintenance, erratic funding and insufficient skilled and trained manpower to supervise road repairs resulting to accessibility difficulties.

The effects have been the reduced crop prices and increased costs of farm inputs whose combined effect reduces the income available to the farmer for consumption, investment and saving. This situation has led to inhabitants of these regions to continue to be among

the most deprived population in the country. Hence there was a need to address this problem by the project.

The project concentrated on the establishment of the contracting and supervision capacity within eleven districts¹. At the beginning of the project Equipment-based methods were employed to rehabilitate and maintain key roads as the Labour-based contractors were still receiving training. Latter the project created the required institutional capacity within the districts to develop and implement plans for sustainable rural accessibility and transportation, identify and demonstrate appropriate techniques and technologies and assisted in the establishment of the Equipment Hire Unit (EHU).

1.2 PROJECT DESIGN

The project was designed to address the following identified main contributing factors to the problem of poor accessibility within the region in a sustainable way.

- a. Lack of qualified district engineers and technicians within the districts and low capacities and capabilities to handle comprehensive planning of road operations.
- b. Lack of local contracting capacities to offer reliable and cost effective services within the districts.
- c. Poor tendering procedures within the districts.
- d. Lack of awareness, knowledge and application of Labour-based methods as alternative technology to the traditional Equipment-based methods, which are dominant within districts, and seen to be the only right methods for road operations.
- e. Lack of active dialogue amongst the main actors responsible for road improvement works.
- f. Low participation of women in planning, decision making and in road-works activities.

1.3 PROJECT FINANCING AND IMPLEMENTATION

The Government of Tanzania received grant and technical assistance from the Government of Finland totalling 5,341,366 Euro. The Government of Tanzanian contributed 917,889 Euro out of total project cost of 6,259,262 Euro.

Both governments were represented in the supervision and implementation of the project. Policies were set in the Supervisory Committee by the competent authorities² and implemented by regional and district authorities under assistance of technical advisory team.

¹ **Lindi Region:** Kilwa, Lindi Town, Lindi Rural, Nachingwea, Liwale and Ruangwa. **Mtwara Region:** Masasi, Mtwara-Mikindani, Mtwara Rural, Newala and Tandahimba.

² The Ministry of Finance (Tanzania) and the Embassy of Finland in Dar es Salaam (Finland).

2 IMPACT OF THE PROJECT

The table below summarizes the main impacts by comparing the situation before and after the project that are further elaborated under section 2.1 through 2.4.

	BEFORE THE PROJECT (Sept.1998)	AT THE END OF THE PROJECT (July, 2002)	REMARKS
Qualified technical staff in districts	1 Engineer, 5 Technicians	11 Engineers* 22 Technicians* 10 Female technicians**	* 18 received Labour-based training (all male) ** Trained at Dar es Salaam Institute of Technology
Labour-based contractors	None	19 Companies (19 Supervisors and 19 Managers) trained out of which 14* are registered	* 6 Female contractors trained and registered
Technology choice in districts	Equipment-based, 100 %	Equipment-based, 73 % Labour-based, 27 % (F/Y 2001-2002)	39,5 km rehabilitated by 9 Labour-based contracts
Availability of equipment	Approx. 10%	Approx. 80%	Establishment of EHU
Rehabilitation of roads	None	Total of 345 km	112 km by Labour-based

2.1 ROAD NETWORK AND QUALITY OF WORKS IMPROVED

During the project period 345 km of roads were improved and maintained to gravel standards including 72 km rehabilitated in Nachingwea and Ruangwa under the training program of Labour-based contractors. As a result both motorized and non-motorized traffic increased along rehabilitated roads.

The performance of Equipment-based contractors and quality of works were generally below expected standard due the lack of capacity and poor supervision. As a result, seven out of fourteen awarded contracts were terminated. In contrast, all Labour-based contracts were implemented at a relatively higher quality and none of them was terminated.

2.2 CAPACITY OF DISTRICTS IMPROVED

Districts were represented in decision-making in the project management boards. Apart of that, project's advisors visited regularly each district that provided opportunities to concentrate on district's specific issues where emphasis was given to quality control and tendering procedures. Proper planning, funding and implementation mechanisms for road works execution were also agreed upon.

During the project period all eleven districts employed qualified District Engineers and recruited 22 qualified technicians whose role is significant in supervision of road contracts. Nine engineers and nine technicians have been trained to plan and supervise Labour-based contracts. Following the training received, Labour-based contracting is now part of the road improvement and maintenance operations in most of the targeted districts

and the proportion of Labour-based road works in districts has increased. Nine of the districts designed and awarded first road rehabilitation contract packages of 39,5 km to registered Labour-based contractors between October 2001 and May 2002.

It was observed that during tendering process most of the district finance committees did not follow the guidelines provided in the Financial Memorandum where existing procurement laws and regulations in Tanzania are stipulated. Thus the project demanded that every contract funded by RRMP has to follow strictly the established procurement laws and regulations. The project also insisted that amicable time be given to the District Engineers for proper evaluation of tenders.

2.3 CONTRACTING CAPACITY ESTABLISHED

The project achieved to train a total number of 19 contractors in Labour-based technology, out of which six are managed by women. By April 2003 sixteen contractors had registered by Contractors Registration Board (CRB) to be eligible to bid for Labour-based contracts. However, further improvements are required in tendering procedures, financial and site management skills.

In order to maintain the created capacity, there is a strong need to guarantee availability of road works contracts for all the trained contractors.

Apart from training and supporting Labour-based contractors, the project also promoted the establishment of local branches for the Tanzania Civil Engineering Contractors Association (TACECA) for strengthening local construction industry. It is expected that this association will help the contractors as a united front in negotiating with clients and other stakeholders in all matters related to their development in contracting business.

The project assisted in the establishment of a locally based Equipment Hire Unit (EHU) for supporting contractors who lack access to the basic equipment for road works. The project procured some essential Labour-based equipment³. Currently the demand for the equipment is high showing the real need for EHU. This development is a clear sign that EHU can be commercially independent.

2.4 WOMEN AND LOCAL PEOPLE PARTICIPATION IN ROADWORKS ENHANCED

Emphasis on women's participation was mainstreamed into the project's outcomes. Six women contractors were trained and registered as Labour-based contractors. Ten female students who had graduated in local high schools were sponsored to pursue three years course in Highways Engineering. Most of them were eventually employed as technicians by districts and regional authorities. At the Labour-based road construction sites, women were approximately 30 – 40 % of the labour force and their performance mainly exceeded men's performance in some activities, e.g. camber formation.

As a result of participation of the local population in road improvement activities, signs of the economic and social developments were clearly seen in the villages along the rehabilitated roads. The villagers who worked as labourers in Labour-based contract sites benefited from increased income. Similarly improved access to socio-economic service centers enhanced the well being of local people. Also new houses were built or rehabilitated by local communities.

³ Sets of purchased equipment included: 4 tractors, 2 trailers, 4 water bowsers, 3 light tippers (6 tons) and 15 pedestrian operated rollers.

3 SUSTAINABILITY AFTER THE PROJECT AND THE WAY FORWARD

3.1 TECHNOLOGY CHOICE AND INSTITUTIONAL SUPPORT

In road construction and maintenance projects a choice has always to be made between using technology either dominated by equipment or labour. This is a task of the authorities responsible for the project after making an appraisal based on considerations of resources available, costs, economic and social benefits as well as policy issues.

Worldwide experience from developing countries shows that choosing Labour-based technology generates larger economic benefits than can be counted through financial cost benefit analysis. Real benefit derived from using labour-saving equipment⁴ is substantially less if replaced labour remains unemployed for significant period during the economic life of equipment. This principal applies to labour-abundant and capital-scarce countries like Tanzania, particularly if labour productivity is increased by organizational, managerial, and mechanical improvements.

However, in Lindi and Mtwara regions, it was observed that prevailing traditional way of thinking of district authorities preferred Equipment-based⁵ to Labour-based methods. This is difficult to challenge because of limited capacities and capabilities of district councils to conduct financial, economic or social appraisals.

Change of the attitude in decision-making is the most challenging part of the training cycle unlike skills and knowledge that could be built within relatively short period of time. Therefore for sustainability, the government needs to formulate and enforce appropriate policies to guide decision-makers on the issue of technology choice.

The project created and promoted Labour-based contracting capacity in the area. For sustaining the created capacity, districts authorities and Regional Managers of Tanzania Roads Agency (TANROADS) need to make available adequate work opportunities to trained contractors that will eventually contribute in the promotion of Labour-based technology. Since the Government of Tanzania was the initiator of the project, it is expected that responsible authorities at national, regional and district levels will bear monitoring responsibilities.

3.2 QUALITY OF WORKS AND SERVICES

Quality is a product of the joint supervision efforts made by both the client and contractors. It is a measure of the extent to which the contract specifications and drawings have been translated into physical features on the ground.

It was observed that before the project the road works in every district were being executed to poor quality standards. This was mainly due to the clients not providing close and proper supervision to the contractors. As a result the quality of works was compromised by non-compliance to the specifications. The implication was eventually the loss of funds by payment for sub-standard works.

Therefore the regional and district authorities need to be committed in the improvement of quality of works and services by following the established tendering and contracting

⁴ Means Equipment-based methods.

⁵ The current practice in the region for Equipment-based contracting does not follow the principals of durable road construction standards as it refers to mere grading and neglects proper shaping and compaction resulting to poor quality of works (see 2.1).

procedures. In this way transparency and trust in between contractors and clients would be enhanced.

3.3 FUNDING OF ROAD WORKS

Funding for district road improvement is basically coming from the national road fund but the time of release and the amount are generally unpredictable. Districts do not cover the gap created as they rarely allocate funds for the road works from their own limited sources of revenue. Since the fund is inadequate it is important to use it in most efficient and appropriate way.

During the project period nine out of eleven districts committed to plan and allocate fund for the Labour-based road contracts based on agreement⁶. The fulfillment of the agreement will generate work opportunities for the trained contractors and further experiences to districts authorities in contracting and quality assurance aspects. The outcome of this commitment will indicate possible change of the attitude and willingness to apply introduced Labour-based technology.

In a long term, consideration for the establishment (in collaboration with donors) of separate fund could ensure further capacity building for contracting Labour-based road works within the region.

4 CONCLUSIONS

The impact of the project shows that most of the intended immediate objectives have been achieved. These include building of required new capacity in public and private sectors for rural roads development and management. Furthermore, the project has demonstrated that Labour-based technology is likely to be a sustainable and appropriate technology choice for rural roads improvements and maintenance in labour-abundant and capital-scarce countries (i.e. least developed countries) like Tanzania.

However, the lessons learned from this project indicate that transfer of knowledge and skills can be achieved through training within the project period but change of attitude requires longer training cycle and depends on willingness and commitment of local institutions.

Therefore the respective authorities should ensure that similar initiatives are properly designed, monitored and evaluated so that the required capacity is established and fully engaged in road development and management. Otherwise it is likely that the associated investment will vanish and the failure to abide to the gained experiences and knowledge will lead to far greater loss in terms of opportunity cost and higher cost to expend on 'road reconstruction'.

⁶ One of the original criteria for the project funding was that districts contribute 50% for Labour-based contracts. However the President's Office for Regional Administration and Local Government (PORALG) did not authorize districts to use grants from the Road Fund as a matching fund to the donor's funding because districts had planned otherwise. The decision was threatening seriously the outcome of the project and therefore the donor authorized the project allocate 100% funding for the contracts in those districts that further committed themselves to finance Labour-based contracts within incoming two fiscal years. Nine districts sent a required commitment letters in which they promised to allocate and use equivalent amount of fund as the project has given by June 2003. Based on that decision grants were allocated and nine contracts were carried out between November 2001 and June 2002.