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The Challenge of Providing Access to the Uluguru Mountains, Morogoro Region, Tanzania

The District Roads Support Program (DRSP) in Tanzania has been addressing a long-standing problem of accessibility to the fertile and productive Uluguru mountains in the Morogoro region. Challenges are technical (steepness of slopes and wet climate), financial (lack of national resources and high maintenance costs), and social (ensuring that improved access to markets will benefit all social groups). Project support has focused on addressing all of these issues: it has introduced soil stabilization and alternative pavement methods, helped construct a new type of pedestrian bridge, promoted low-cost and durable road improvement involving the local population, taken into account the whole area instead of focusing only on a few roads, provided reliable access to markets in the region and outside markets, supported income generating activities for the poor, as well as disseminated information about the spreading and prevention of HIV/AIDS.

The challenge of increasing accessibility for the poor in tropical mountains

The District Roads Support Program (DRSP) in Tanzania, funded by the Swiss Agency for Development and Cooperation (SDC), implemented by ITECO Engineering Ltd, and expected to last from mid-2000 to the end of 2004, is operating within an area of about 85,500 km^2. Approximately 2 million people are currently served by the rural roads network within the program.

The Uluguru mountains and surrounding areas cover an area of about 3500 km^2, with a population of about 107,000 people. The Uluguru, which reach up to 2100 m, are located in the northeast of the Morogoro region. Within the mountains and surrounding areas there are 4 relatively large and various other small marketplaces used by the local community to sell and buy goods among themselves as well as to people outside the area. Normally, each marketplace has 1 day per week during which it operates.

Road access to the fertile and productive Uluguru is a major challenge because of climatic conditions and the steepness of the area. Moreover, traffic is not dense enough in the area to justify expensive surface treatment under current economic conditions in the country. Improvement of mountain roads using conventional methods has resulted in high maintenance costs that could not be met by road authorities or the communities themselves. As a result, the areas are not accessible—especially during the rainy season, which lasts about 6 months. This affects poor communities in a disproportionate way.

FIGURE 1 Local people rehabilitating the Mlali to Mgeta road in the Uluguru mountains. (Photo by Mr. Karumuna, ITECO)

Low-cost, participatory road improvement

Many local mountain communities are still without reliable road access. Most of the existing roads are just passable in the dry season and not at all in the rainy season. The DRSP strategy is to improve only bad road spots ("spot improvement"). This makes it possible to cover a larger part of the road network, thus expanding the benefits to a larger part of the population.

Another DRSP strategy is the use of technology for road improvement adapted to financial constraints. Rehabilitation follows strict prioritization and use of low-

cost technologies. The strategy is also based on the need to provide job opportunities for the poor and encourage ownership by the community and use of local resources (Figure 1).

A key issue in the appropriate technology strategy is the use of rehabilitation and upgrading options. These can be executed using a step-by-step development approach with the primary objectives of training and research. The following are some of the options implemented in the Uluguru mountain area.

Soil stabilization

Soil stabilization can reduce or minimize environmental degradation as well as significantly improve road conditions. It increases the lifespan of gravel roads and reduces maintenance needs and costs. Several sections along existing roads in the Uluguru have difficult soils that have greatly benefited from stabilization. Normal rehabilitation measures along these sections provided improvement for only a very limited time because of the soil types. Selection of the particular stabilization measure is thus determined by technical analysis of soils.

For maximum benefit, the following factors are considered: increase the use of locally produced stabilization materials such as lime, cement, and gravel; use in situ materials for stabilization; use various ratios for assessment in order to optimize future designs; and use materials with minimum negative environmental impact. So far, this approach has been successfully applied.

Alternative pavements

The competitiveness of several alternative pavement types was tested on location. The factors considered were: construction costs, maintenance costs, design life, environmental impacts, construction methods, and provision of local job opportunities for the disadvantaged/poor. The alternative surfacing options selected for implementation included bituminous surface treatment, Otta seal, concrete pavement, and stone pitching/masonry pavement.

Construction methods for these types of pavement do not require contractors with highly sophisticated equipment. Local knowledge is available, and the options were implemented in selected problem zones with either steep slopes or very poor soils. These pavement options were selected in accordance with their appropriateness to slope and soil type, and successfully applied on 3 main roads in the Uluguru mountains.

Pedestrian bridges

Pedestrian bridges are an important means of circulating within mountain areas: they facilitate movement of people, animals, and goods within the community and to the outside markets. The DRSP introduced suspended pedestrian

FIGURE 2 The new Kipondwa pedestrian bridge. (Photo by Mr. Kanyunyu, ITECO)

FIGURE 3 The Lubigwa pedestrian bridge, built using traditional methods pre-dating the new suspension technology. (Photo by Mr. Kanyunyu, ITECO)

bridges—a new technology in the area (Figure 2). Local artisans can easily construct this type of bridge, using local materials supplemented by imported cables. These bridges are safer and more resistant than the timber bridges previously built in the area (Figure 3), which sometimes constitute a high risk for pedestrians. Suspended bridges can have a span of up to 200 m—another advantage of this innovative infrastructure.

Social actions

Within the framework of its poverty reduction strategy, the DRSP has incorporated social actions for community development in its approach to road and access improvement, with the aim of enabling the poorest of the poor to also benefit from the roads. Indeed, without such direct action, the main benefits of improved roads tend to go to richer groups such as transporters, traders, shopkeepers and commercial farmers. The DRSP is also aware that improved access can increase the risk of exposure to HIV/AIDS, just as it can help circulate information about this risk and promote prevention campaigns. Several social actions were therefore implemented just before, during, and after road improvement.

Income generating activities

The concept of "beyond road activities" aims to stimulate villagers living along the newly improved roads to engage in productive activities. This is done by using a variety of communication techniques and other strategies to provide information and knowledge that can change beliefs, attitudes and behavior related to proposed development activities. So far, the project has supported the community by introducing a savings and credit scheme known as the Village Community Bank (VICOBA).

The VICOBA methodology has proved to be a far more successful scheme for rural communities than any other system practiced in the area. This savings and credit model builds on and improves traditional African methodologies, which are rigid and provide limited and inflexible access to accumulated savings. A VICOBA is primarily a Savings Club with a membership that does not exceed 30 participants per group (Figure 4). Members meet once per week and make contributions as shares to the club. At the same time members are encouraged to use the funds for short-term needs as loans on which they have to pay interest. These loans allow individuals to meet their small and short-term financial needs for income generating activities, social obligations, and emergencies without having to borrow from money lenders or their relatives. The establishment of a VICOBA in a poor community goes through different phases including an introduction, intensive training, development, and maturity phases. All in all, this takes about 10 months.

The methodology has many strengths, eg: there is no need for initial funds; transactions are simple and completely transparent; interest earned on loans goes to the group and not to service providers; internal social pressure and group by-laws encourage members to reimburse on time; membership in VICOBA does not prevent participants from being members of other savings and credit systems; distribution of savings at the end of a cycle allows members to acquire useful amounts of capital that can be invested in longer-term activities.

Several groups have already been formed, with average savings per group of up to US$ 1800 (August 2004 figures). Groups have disbursed loans to members and the repayment rate is 100%. Groups have also received appropriate training to

FIGURE 4 A meeting in Tawa village to introduce a VICOBA scheme. (Photo by Mrs. Mkombe, ITECO)

produce quality goods such as Batik and tie dye, gardening, milk goat and poultry production, soap manufacturing, and beekeeping.

HIV/AIDS prevention activities

Road construction activities provide an important means of accessing large numbers of rural people to provide the key elements of HIV/AIDS awareness. People involved in concrete projects are receptive to information provided by partners who clearly work to improve local conditions. The DRSP is working in close partnership with local communities and government authorities to help populations accept the reality of HIV/AIDS in rural areas and to become properly aware of transmission problems and means of prevention.

Several activities were implemented to address and monitor HIV/AIDS issues during planning and implementation of road improvement projects. Almost all road improvement projects supported by the DRSP have the following HIV/AIDS components:

- Prior to implementation of HIV/AIDS activities, a rapid assessment to ascertain the extent of HIV/AIDS awareness by the communities in the villages along the roads under construction is performed by qualified medical practitioners.
- Tailor-made programs are then developed and implemented based on the outcome of the rapid assessment exercises. They have 2 components: 1) Mass public addresses by medical practitioners helped by trained cultural dance groups (Figure 5) address and convey messages to the community on specific issues, especially those identified during rapid assessments. 2) Village leaders and peer educators selected from different age and interest groups in the community are trained on various issues related to the spreading and prevention of HIV/AIDS. Peer educators are later used to pass the messages on to different community groups.
- Billboards with different messages related to the spreading and prevention of HIV/AIDS are erected on all construction sites.
- Distribution of condoms to the laborers and contractor's staff working on the road, as well as to the communities along the road under improvement, is also done using trained peer educators.

FIGURE 5 Cultural dance group supporting an HIV/AIDS prevention campaign in Tawa village. (Photo by Mr. Kanyunyu, ITECO)

Conclusions and lessons learned

The actions have significantly improved the accessibility levels in areas previously deprived of any reliable access. A key element is that the level of improvement is not always a mythical 'all-year' level but aims at 'value-for-money' improvement providing more reliable ways of using social and economic services. Issues such as HIV/AIDS, support for income generating activities, and improved governance can easily be disseminated among a relatively large number of people within the vicinity of roads, through an integrated approach and participative work.

Provision of access for the poor communities in mountainous areas is a challenging undertaking requiring more than the usual engineering solutions. There is a need for clear analysis of the situation as well as affordable and sustainable solutions. For poor communities, roads alone will not solve all income problems: support for income generating activities is vital to ensure that all members of a community benefit from improved access.

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