

# COMMUNITY-BASED LABOUR-INTENSIVE ROAD CONSTRUCTION: FINDINGS OF AN IMPACT STUDY OF THE AMADIBA ROAD

M MASHIRI, D THEVADASAN and R ZUKULU

CSIR: Built Environment, Rural Infrastructure, PO Box 395, Pretoria 0001, South Africa.  
E-mail: [mmashiri@csir.co.za](mailto:mmashiri@csir.co.za), [sthevasan@csir.co.za](mailto:sthevasan@csir.co.za) and [rzukulu@csir.co.za](mailto:rzukulu@csir.co.za)

## ABSTRACT

The Amadiba community, which is nestled in the Mbizana Local Municipality, situated in the O R Tambo District in the Eastern Cape Province of South Africa, approached the CSIR through a local not-for-profit organisation for assistance to upgrade their road. Mbizana is considered to be one of the poorest local authorities in the entire country with unemployment levels standing at over 75 percent in 1999. The CSIR secured poverty alleviation funding from the South African National Roads Agency for a road, which, except for vehicles with a high clearance such as tractors, lorries and “4x4s”, was generally, impassable particularly in inclement weather.

This paper briefly describes the community-based labour-intensive construction of the Amadiba road, which stretches for forty kilometres from a blacktopped provincial road (R61) to the Mtentu estuary. It unravels the impact this project has had on the Amadiba community, and speculates on key success factors for projects of this nature informed by lessons emanating from the project. The paper concludes by noting that while the balance of evidence suggested that the road has had a positive impact on the livelihoods of the Amadiba community, other sectoral interventions are required to permanently and positively influence the socio-economic trajectory of the community.

## 1. INTRODUCTION

The Amadiba community, which is nestled in the Mbizana Local Municipality, situated in the O R Tambo District in the Eastern Cape Province of South Africa, approached the CSIR through a local not-for-profit organisation for assistance to upgrade their road. Mbizana is considered to be one of the poorest local authorities in South Africa with upwards of eighty percent of the population living below the poverty line, and a significant number of households having no income at all (Alderman et al, 2001). Unemployment levels stood at over 75 percent in 1999. The CSIR turned to the South African National Roads Agency (SANRAL) for and secured poverty alleviation funding for a road which, except for vehicles with a high clearance such as tractors, lorries and “4x4s”, was generally impassable particularly in inclement weather.

Since 1994, the South African Government has had a National Public Works Programme whose aims included employment and asset creation, as well as capacity and skills development (McCutcheon, 1999) with a view to impacting on poverty reduction and economic growth. The socio-economic circumstances of the Amadiba community sketched above therefore provided an appropriate environment and opportunity for an extension of an existing government programme. Project funding of close to R10m by Government

[through its roads agency] should thus be viewed within this broader strategic context emphasizing labour-intensity in the provision of short-term employment, as well as laying the foundation for the creation of systems, procedures and capacities for sustainable employment<sup>1</sup>. Howe (2001) agrees that this technique offers the opportunity for job creation and poverty relief in a short term although long-term programmes are viable depending on institutional support.

Community-based labour-intensive construction<sup>2</sup> of the Amadiba Road, which stretches for forty kilometres from a blacktopped provincial road (R61) to the Mtentu estuary, began in January 2002. However, the project itself had been running since July 2001. In the intervening period leading up to the commencement of the construction activities, a firm foundation was laid for a successful community-based project, i.e. the institutionalisation of meaningful stakeholder involvement, with particular reference to the beneficiary community. It was deemed important to mobilize and galvanize the community around the numerous socio-economic benefits emanating from the project that would accrue to the community. It was also critical to begin to unbundle the labour-based approach that would be employed to construct/upgrade the road. Other aspects of the project undertaken in this period included, among others, registration of the project for workman's compensation, securing of insurance for the project and getting permission from the South African Department of Labour to use wage rates below the minimum stipulated by legislation.

## **2. PROJECT AIMS AND OBJECTIVES**

The overall aim of the project was to enhance accessibility to socio-economic opportunities for the upwards of 15,000 people served by the road, including some 1,500 households located along the road.

Specific contract objectives included:

- Development of sustainable road infrastructure to facilitate development and wealth creation for the Amadiba community
- Creation of jobs through road construction and maintenance work
- Development and strengthening of the local skills base as well as the transference of technology to community members involved in the project
- Arresting environmental degradation resulting from the proliferation of tracks created by motorists when designated roads/tracks are impassable
- Building the capacity of Mbizana local authority officials to monitor and evaluate a project of this nature and magnitude as well as to design and manage a road maintenance plan.

## **3. MODUS OPERANDI**

### **3.1. Project Inception Workshops and Meetings**

Project meetings with stakeholders facilitated by a social consultant hired for the project, were convened to mobilize, galvanize, explain and as well as to iron issues such as the

---

<sup>1</sup>An International Labour Organisation [ILO] review of experience with labour-based road construction in countries as diverse as Ghana, Lesotho, Madagascar, Rwanda, Zimbabwe, Cambodia, Laos, and Thailand showed that the labour-based option is about 10-30% cheaper than the capital intensive equivalent, reducing foreign exchange requirements by 50-60%, while creating between three to five times the amount of employment for the same investment [Islam and Majeres, 2001].

<sup>2</sup>Employment-intensive construction may be defined as the economically efficient employment of as great a proportion of labour as is technically feasible to produce a high standard of construction as demanded by the specification and allowed by the funding available [McCutcheon, 1999].

level of funding available, wage rate and method of payment as well as the plan for constructing the forty kilometres long road, which entrenched transparency in project management. While, initially, the local community expressed some scepticism at the proposed project because of prior unfulfilled expectations, it soon became enthusiastic about the prospects of its area in the event that the project went ahead.

### 3.2. Project Steering Committee

A Project Steering Committee (PSC) comprising mainly of traditional authorities, local leaders and other stakeholders together with a representative each from Mbizana and OR Tambo municipalities, CSIR/PondoCrop, SANRAL, Department of Nature Conservation, Eastern Cape Department of Roads and Public Works and the Amadiba Coastal Community Development Association (ACCODA), was formed to oversee the project on behalf of the community. In other words, the community became the managers of the project through the work of the PSC, while at the same time the community itself, through individual members was responsible for the delivery of the road. This intricate but transparent community ownership approach contributed significantly to the success of the Amadiba road project. The PSC also negotiated acceptable wage rates with the community, conducted a skills audit and selected local candidates to form a Construction Management Team as well as to develop a framework for the recruitment of labour.

### 3.3. Environmental Impact Assessment

Given that much of Mbizana is not only endowed with natural beauty, but it is also one of the most environmentally sensitive on the eastern seaboard, an environmental impact assessment was concurrently undertaken. The assessment yielded an Environmental Management Plan, which was subsequently approved by the Eastern Cape Department of Economic Affairs, Environment and Tourism.

### 3.4. Amadiba Road Construction

In order to save on project costs, the CSIR was employed both as the civil engineering consultant as well as the contractor.

Established principles and procedures for labour-based construction emphasizing intensive on-the-job training were employed to:

- Construct a six metre wide, forty kilometres long gravel road (not compacted - this has since been achieved by traffic with the passage of time) with a design speed of forty kilometres an hour, generally along the line and to the grades of the existing road/track and making use of existing formation and bridges where applicable.
- Construct minor drainage works including sixty-four drifts to reinstate or stabilize washouts and to deal with localized road drainage as required.
- Construct low-level causeways across rivers and streams, including a 5.25m wide and 36m long one across the Mnyameni River.

Technical, largely on-the-job training, which was mainly aimed at the construction management team, comprised modules for laying of storm water pipes, building of head-walls and wing-walls, constructing sub-surface drains, concrete batching and placing, steel fixing, erecting formwork, installing gabion, constructing stone masonry, small plant operation and entrepreneurship. The construction cost of the six metre wide road including wages, materials and plant and site overheads was approximately R198,000 per km excluding VAT.

Although most tools and small plant were procured from outside the local municipality, a concerted effort was made to minimise leakage of project funds, for example, materials such as gravel as well as transport services were procured locally. The project was completed in October 2003.

#### **4. BEFORE INTERVENTION PROFILE**

Through observation, selected informant interviews and discussions before the reconstruction of the road, the following issues among others, were raised as serious concerns:

- In inclement weather, the road was virtually impassable. This meant that the five schools, one clinic and scattered shops were completely cut off. Given that South African school term begins during the rainy season in the beginning of the year, the timeous delivery of educational materials, for example, would often not be guaranteed. Delivery of medicines to the clinic and provisions to the shops also suffered the same fate especially in summer.
- Furthermore, communities either side of the Mnyameni River would be completely cut off from each other thereby truncating social interaction.
- Often, the isolation of the community could last for many days – teachers and learners would not be able to access their schools, law enforcement agencies and emergency services would not reach the area, and persons dependent on mobile clinics and scheduled visitations by medical staff, particularly the elderly and those with chronic illnesses would go without those services. These multiple effects on health impacted negatively on villagers' productivity as well as their quality of life.
- It took between four and five hours to drive from one end of the road on the R61 to the Mtentu estuary on the other, a distance of just over forty kilometres.
- Public transport modes that plied the route were mostly un-roadworthy local minibus taxis and light delivery vehicles (LDVs).
- The minibus taxis only travelled between seven to eight kilometres of the motorable section of the road before turning around and heading for the comfort of the R61.
- Most households had small patches of maize and sweet potato growing, generally less than five acres, most of which would lie fallow every year. Agriculture was practised at a relatively rudimentary subsistence level. Marshalling credit to exploit socio-economic opportunities was therefore inherently an impossible challenge.
- It was difficult for law enforcement agencies to apprehend criminals resulting in relatively high criminal activity in the area.
- Given this lack of reliable and efficient access to socio-economic opportunities for the Amadiba community, rural livelihoods significantly deteriorated and development prospects degenerated, and thus villagers had generally lost hope for a better future.

#### **5. AFTER INTERVENTION PROFILE**

##### 5.1 Approach

A review of literature, structured and semi-structured interviews, discussion with opinion leaders, focus groups, and direct observation through field visits were the approaches employed to access information to generate the following "after intervention profile".

##### 5.2 Employment Record

Of the 1700 villagers who were employed (albeit on a temporary basis – in fact, two months to allow more community members to be involved) on the project over a period of twenty months, 1020 were women while 680 were men, reflecting a proportion of 60:40.

The youth constituted 20 percent of this figure (a stipulation of the Code of Good Practice for Special Public Works Programmes). This represented upwards of 38 percent of the unemployed, a significant figure for a community saddled with upwards of 75 percent unemployment. Of the 40 people selected as supervisors over the life of the project, 34 were men and 6 were women. Recruitment of this construction management team was undertaken by the PSC and was informed by a skills audit and a relatively rigorous selection process [education levels, communication and leadership skills]. Although there were fewer women in management positions, there was undivided and indivisible commitment to the empowerment of women by the project PSC. Given that women in Amadiba have a societal duty to look after their families, their incomes were largely employed to achieve this end, thereby reducing leakage of project funds out of the community.

### 5.3 Community Empowerment

The Amadiba community's perceptions of the project are glowingly positive, for example:

- The community believes that the project has opened up the area for development and that it has expanded the community's horizons with regard not only to understanding developmental issues pertaining to their areas, but also with respect to perceiving and acting on economic opportunities. In this regard, a number of development related entities such as the Amadiba Poverty Relief Company (whose portfolio of projects running the gamut from tourism to agriculture epitomises the newly found optimism and hope for a better future) and Xolobeni Empowerment Trust have been set up to begin to marshal ideas and resources for local economic development.
- Upwards of 1,700 community members were employed on a temporary basis for the duration of the project. It is envisaged that forty permanent jobs will be created in ongoing maintenance work.
- Community members working on the project used their wages to build decent houses [some of them using skills gotten from the project], pay school fees for family members, buy agricultural inputs and livestock, as well as purchase groceries.
- Some enterprising households, particularly those located along the road [who were not necessarily direct beneficiaries] have increased their acreage for crop husbandry.
- Others have acquired and improved household assets such as implements and houses.
- Shopkeepers reported much brisker business than before, especially during the construction phase, both from local communities and passing traffic.
- Although it still takes long to access educational facilities, by using the road, learners are now able to access these facilities even in inclement weather, thereby reducing absenteeism of both learners and teachers. Schools are now able to procure their materials as and when required.

### 5.4 Quality of Life

The new road has impacted differently on various community tasks and activities. For example, the new road has not significantly impacted daily chores such as collection of firewood and water. However, other quality of life indicators have been positively impacted, such as school attendance, penetration of mobile clinics, travel to the main centres, visiting family and friends, church and community centres, to name but a few. Table 1 below indicates community perceptions on the impact of the road on household tasks and activities.

**Table 1. Community perceptions of the impact of the road.**

<b>Tasks &amp; Activities</b>	<b>Better</b>	<b>Worse</b>	<b>Unchanged</b>
Collection of firewood	25.0	10.7	64.3
Collection of water	21.4	3.6	75.0
Gathering from the “veld”	21.4	0	78.6
School attendance	89.7	0	10.3
Church attendance	75.0	0	25.0
Local clinic visitations	96.6	0	3.4
Access to mobile clinic	91.3	0	8.7
Access to local markets	69.0	0	31.0
Access to community centres	93.1	0	6.9
Travel to adjacent communities	82.8	0	17.2
Travel to main settlements	100.0	0	0
Visitations (relatives, neighbours, etc.)	93.2	3.4	3.4

### 5.5 Community Consultation and Participation

Ninety-three percent of respondents reported that they were consulted on this and other issues in the community. The community was thus generally well informed and aware of proposed activities. This had the effect of fast tracking project implementation given its community-driven nature. In this regard, and for similar community-based projects, a social facilitator is a critical member of the project team.

### 5.6 Capacity Building and Training

R150,000 was spent on training of construction supervisors, who were selected through a formal employment application system. They were taught how to set out the road using simple survey techniques, followed by excavating, shaping and gravelling using specially designed templates. Based on their training and experience on the project, some of the road construction supervisors have since set up a construction firm to undertake similar projects, especially targeting construction projects that could be farmed out by the Mbizana Local Municipality. General life skills were also imparted to the rest of community members on the project.

### 5.7 Community-Based Labour-Intensive Methods and HIV/AIDS

In the transport sector, it is recognized that transport infrastructure construction and maintenance often involves workers from different and sometimes distant places living together in temporary camp-like accommodation, which often leads to increased sexual activity among non-regular partners largely because of the absence of normal social network that regulates social behaviour (Mashiri, 2004). By employing locals who all know each other and who retire to their homes after work, community labour-based methods reduce the spectre of promiscuous and casual sexual contact. Clearly, the use of this approach has the effect of indirectly minimising the spread of HIV/AIDS (European Commission for Development, 2002). In fact, a project such as this could become a conduit for disseminating development information, including HIV/AIDS awareness and prevention information.

## 5.8 Mobility and Accessibility

### *5.8.1 Changes in Traffic Patterns and Levels of Service*

After the completion of the road, over 90 percent of respondents were of the opinion that there was an increase in traffic. 17 percent thought that the increase was due to increased tourist traffic only, while 53 percent felt that the increase derived from both local and tourist traffic. 30 percent of respondents were unsure as to where the increase was coming from.

Traffic flows and average speeds were measured before and after the reconstruction of the Amadiba road where the road intersects with the R61 (Little, 2003b). The bi-directional volume increased significantly from 30 to 100 vehicles per day. The main modes of transport using the road are minibus taxis, light delivery vehicles (LDV), trucks, buses, and sedans. This improvement has increased competition to such an extent that un-roadworthy vehicles now have very little business, and in turn, the level of service has improved markedly.

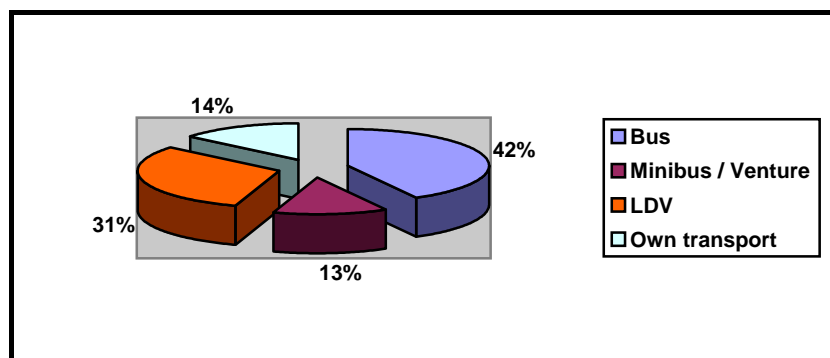
The reconstruction of the Amadiba road had the effect of significantly reducing travel time and increasing journey comfort, for example, average speeds have more than doubled from less than 15km/h to over 30km/h. Whereas it used to take more than four hours for villagers and tourists to travel from the R61 to the Mtentu estuary before the project, the average time now spent is just under two hours.

Motor-vehicle hire charges for ferrying goods have also reportedly fallen. Because transportation costs are a significant component of total costs affecting the survival of small firms as well as entry of new firms into the market, this development has induced the mushrooming of small enterprises in Amadiba. Partly as a result of the good road, many more visitors are being attracted to the area, which augurs well for the burgeoning tourism industry, and, by extension, local economic development. As Howe (1999) has noted improvement in transportation results in cheaper, quicker, more frequent or more reliable travel, thus providing a direct economic benefit to the rural poor.

For the Amadiba community, the reduced travel time and comfort as a result of the upgraded road are important factors that have contributed to their quality of life. In this regard, for example, it now has a real choice of which higher order centres to visit in order to take care of business. So for instance, even though Port Edward is nearer (45km), 77 percent of households prefer to travel to Bizana (75km) to undertake their activities, followed by Port Shepstone, with Port Edward a distant third. While Bizana is preferred mostly because of the nature of goods and services available as well as its ambience, it inadvertently suggests that there is minimal leakage of the hard-earned resources from a poor municipality such as Mbizana. One of the most important consequences of road improvement is to allow more locational choice for economic activities resulting in more efficiency and greater productivity in the economy.

### *5.8.2 Community Modal Choice to Main Activity Centres*

Forty-two percent of villagers visiting higher order centres use the bus, while 31 percent of use light delivery vehicles masquerading as public transport (see Figure 1 below). While buses are owned and operated by outsiders, the opposite is true of LDVs, which again reduces the leakage of income from the community, thereby strengthening local economic circuits and contributing to local economic development. It also means that sometimes payment for services rendered especially for emergency services can be negotiated, for example, to be paid in kind or overtime. Communities now have a variety of transport modes to choose from, which has positively impacted service levels.



**Figure 1. Community modal choice to main activity centres.**

Eighty percent of respondents reported a reduction in travel costs since the reconstruction project, varying between 17 and 22 percent. The highest average reduction in fares of R3, 10 was recorded for the service to the R61. Table 2 below provides a clear indication of the significant drop in fares for all destinations.

**Table 2. Average fares before and after the reconstruction project.**

From Amadiba Road	Before	After	% Change
<b>Bizana</b>	R16.80	R13.80	18
<b>R61</b>	R14.20	R11.10	22
<b>Clinic/hospital</b>	R9.60	R7.70	20
<b>Market</b>	R16.20	R13.50	17

### 5.8.3 Emergency Services

Prior to the reconstruction project, 84 percent of respondents felt that the emergency response was poor. After completion, 45 percent rated the response as good, while 55 percent thought it was average, but none considered it poor. Other variables such as the non-availability of vehicles and transport management function rather than the condition of the road could also have affected the dispatch of emergency vehicles, which could explain the relatively high value of “average” after the completion of the road.

Eighty percent of respondents were of the general view that the reconstructed road had improved access to socio-economic opportunities, for example, by positively impacting on fares and travel time, as well as widening mode choice through increased competition in transport services throughout the year. Villagers who voiced some concerns appeared to experience access problems from their homesteads to the Amadiba road, which draws attention to the need to improve lower level infrastructure such as paths and access roads for internal village circulation.

## 5.9 Project Income

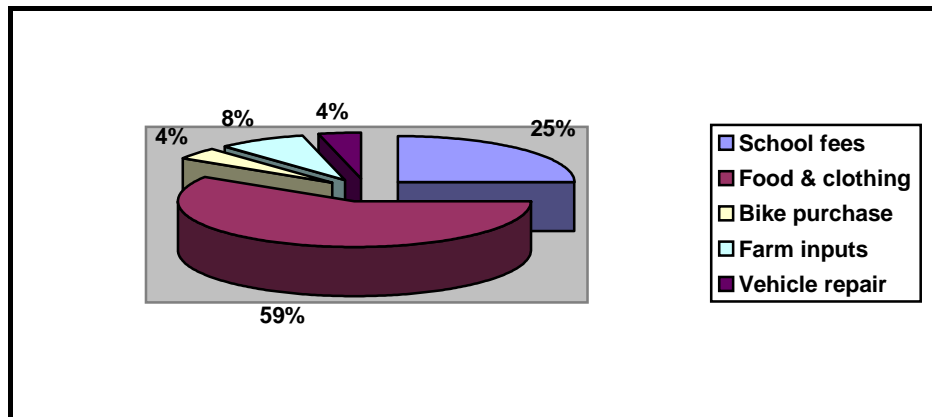
### 5.9.1 Remuneration

The total project value was R9.63 million of which R6.7 million (or close to 70 percent) was earned directly by the community. The total amount spent on wages was R4.3 million. The average wage was upwards of R243 per week, while the lowest wage of R175 per week was earned by unskilled labourers and the highest paid was R600 per week to the construction manager. Given that over 82 percent of respondents working on the road project were unemployed prior to being engaged on the project and that sixty percent were women, the wages represented a relatively significant injection into the local economy.



What is also of interest is the fact that 56 percent of all interviewees had at least one member of their family employed on the project indicating the spread of benefits in the community and the poverty alleviation properties of labour based methods.

### 5.9.2 Deployment of Project Earnings by Beneficiary Communities



**Figure 2. Use of project earnings by beneficiary communities.**

Figure 2 above indicates the various uses of income earned on the project by beneficiaries. Clearly, most of R6.7million earned on the project was used for basic needs such as food, clothing and school fees. The improved road and the disposable income also prompted some villagers to purchase bicycles and repair their automobiles, with a view to improving their means of locomotion. Farm implements, seeds and other inputs were also purchased. In general, employment created through the project provided the community with much needed cash injection and purchasing power triggering multiplier effects. These multipliers were unleashed through the expenditure on wages and inputs used in the construction, together with the concomitant derived demand generated for the output of other sectors. The total effect has thus positively reverberated on the local economy. However, these multiplier effects were not studied.

### 5.9.3 Haulage

Gravelling material was transported from locally identified borrow pits. Local truck and tractor-drawn trailer owners were hired at a cost of R1.5 million to transport the gravel. Approximately 30,000m<sup>3</sup> of gravel was transported at an average rate of R45/m<sup>3</sup>. Haulage vehicle owners contributed significantly to the project funds that were retained in the community – again reducing leakage of project funds out of the community. These entrepreneurs have acquired invaluable project experience.

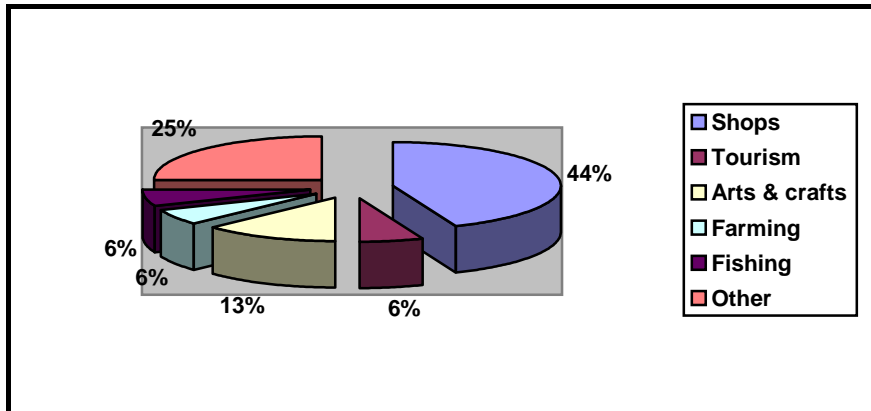
### 5.9.4 Poverty Alleviation and Income Leakages

With the exception of the construction of the low-level river crossings, machinery was used sparingly on the project. The machinery used, some of which remained as community property after the project, included a generator, plate compactor, water pump, concrete poker vibrator and a drill and compressor unit. In addition, PSC members spent R200,000 on hiring private property to store tools as well as on attendance of meetings. Community-based labour-intensive methods helped to minimise external expenditure, keeping a large proportion of the funds that would be spent on conventional machinery circulating in the community, thereby alleviating poverty, albeit temporarily.

## 5.10 Small Enterprise Development

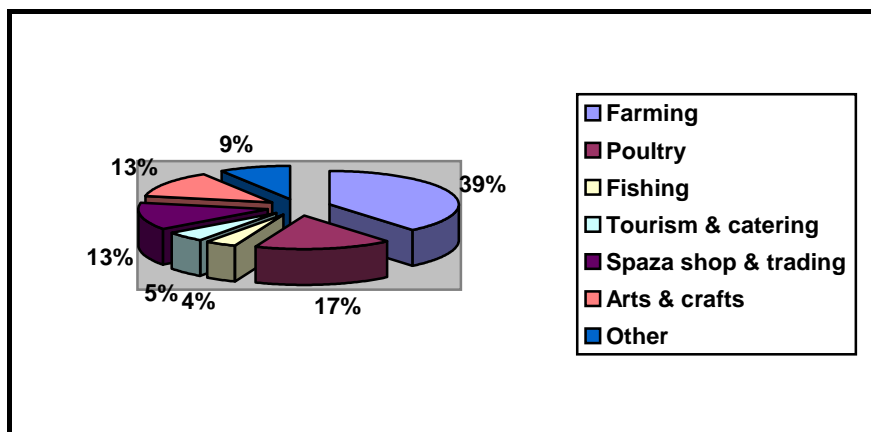
### 5.10.1 Community Perceptions of New Enterprise Development

Fifty percent of respondents noted that new businesses had opened since the Amadiba road was completed, as opposed to forty percent who were non-committal. Figure 3 below indicates the proportion of respondents who were clear and specific about the range of businesses that they perceived to have been established since the completion of the reconstruction project. Generally, villagers felt that the road had opened up the area for business development.



**Figure 3. Community perceptions of new enterprise development.**

Seventy-three percent of respondents engaged in one activity or the other were of the opinion that the road improvements had inspired them to start their new businesses. In this regard, more than fifty-five percent of those inspired chose farming. Figure 4 below enumerates business ventures that respondents are either already engaged in, or would like to start.



**Figure 4. Community preferences for new enterprise development.**

Respondents' perceptions enumerated above have been corroborated by the mushrooming of a variety of business initiatives in the community, which gives credence to the assertion that infrastructure contributes to the diversification of rural economies by facilitating growth of alternative employment and consumption possibilities (Kessides, 1995). For example, under the auspices of ACCODA, community members have since formed an entity, Amadiba Poverty Relief and Development Company, which operates on the premise that ten percent of its profits are ploughed back into community development projects.

This enterprise is in various stages of planning and implementation of income and employment generating activities:

- **Farming** – Twenty-three villagers are involved in farming, growing market gardening crops such as cabbages, sweet potatoes, yams, potatoes, spinach and *mealies* – a much more diversified range of crops than before the construction of the road. They are also involved in livestock farming [rearing cattle, sheep, goats, pigs and poultry]. The main market for the farm products includes Bizana, the community and tourists.
- **Fishing** – there are plans for the community to lease existing campsites for fishermen as well as act as guards and fishing guides from the Mtentu to Mzamba Rivers. At present, this cost centre generates income from harvesting and selling crayfish to tourists and the community. As a result of the better road, more tourists are envisaged to visit the area.
- **Education** – Fifteen villagers have been selected to engage in this activity. The primary objective here is to set up pedagogy facilities for the elderly and preschools. Plans are afoot to build more preschools and training centres in the area.
- **Catering** – Eight villagers are involved in catering. They generally cater for meetings, functions and workshops. There are plans to extend this activity to incorporate catering for the tourism industry as soon as the Eastern Cape Department of Economic Affairs, Environment and Tourism have approved their application for provision of camping and accommodation facilities.
- **Furniture** – Ten people are involved in this activity, which also includes the manufacture of ethnic crafts. Other products to be manufactured include, chairs and stools, shelves and cupboards. The main market for the manufactured goods is Bizana.
- **Blocks** – Fifteen people are involved in the manufacture of building blocks. The main market for the blocks is the community. The products are required to build homesteads, community centres, preschools, schools and shops. The market for the building blocks expanded significantly during the construction of the road.
- **Tourism enterprises** – The community is currently involved in negotiations with the various responsible ministries to provide tourism accommodation at various locations, including the natural sandstone caves along the Mnyameni River and the Mnyameni and Sikhombe River mouths.
- Strwn along the coast from the Wild Coast Sun to the Mtentu River are several “illegal cottages” built on community land. The community is negotiating to take over these cottages in order to run formal tourist accommodation facilities.
- The community also plans to set up hiking trails along the coast and along the riverine forests.
- Faced with a shortage of public transportation services, community members have set aside eight LDVs to transport villagers and their goods. Given that the cost of hiring an LDV to and from the main centres [e.g. Port Edward – 45km away is approximately R450 and from Bizana, a distance of 75km, is approximately R600], it is a relatively lucrative business that will also ensure that resources from various sources keep circulating in the community.

### 5.10.2 Agriculture

The quality of access roads has a direct impact on agriculture (Stilwell and Atkinson, 1999). Clearly, before reconstruction, the Amadiba road had the effect of increasing the cost of production, by influencing the quantities of inputs purchased (fertilizer, seeds, labour and equipment), which in turn reduced outputs and negatively affected margins, thereby discouraging production of surplus for the market. Villagers were thus generally marooned in a down-spiralling poverty trap. However, observing from the increased acreage [with a wider diversity of crops from the usual maize and sweet potatoes] under the plough, it would appear that the upgraded road has indeed begun to impact positively

on the cost of production, entrenching food security, and increasing and diversifying incomes. In a similar study where rural road projects had been implemented in Morocco, Levy (1996) found that, overall levels of agricultural activity increased in volume of production, productivity of the land, and monetary values of the output. In addition, the agricultural mix in Amadiba appears to have been transformed, as farmers have been able to shift land from low value grains to high value market gardening products, which yield higher profits. Clearly, the significant reduction in perishability risks brought about by the better quality and all-year operability of the improved Amadiba road has significantly influenced the apparent community metamorphosis from risk averseness to a community that exudes some newly found business confidence.

### *5.10.3 Retailers*

Retailers, especially the ubiquitous general dealer shops represent an important trading point for the Amadiba community. Pensioners and other villagers depend on general dealers for operating credit lines and cashing of pension cheques. The improvement of the road has revived many moribund general dealers and restored the formal retail trade by reducing costs (albeit marginally) of merchandise and attracting new customers especially those working on the road, as well as passing traffic. It has also had the effect of substantially reducing the profit margins of merchants who benefited from buying community produce at low prices and disposing the same elsewhere at inflated prices, as well as selling to the community at high prices goods purchased at relatively low prices. The merchants are gradually being squeezed out of business, as communities are now able to move their own goods to the market at negotiated prices.

## **6. MAINTENANCE MANAGEMENT PLAN**

It is evident from interacting with community members that generally, they are keenly aware of the need to begin to put in place a team that will operationalise the maintenance management plan for the Amadiba road before the elements do irreparable damage to their asset. While the project was completed in October 2003, a follow up community maintenance programme mostly involving patch gravelling, cleaning of side drains, reshaping of drains and clearing of vegetation, is still to commence. Good road infrastructure is a function of good governance (Calvo, 1998). Unfortunately, administrative constraints have delayed the implementation of this programme, which is not only vital to the forty villagers that will be employed, but also to the preservation of the high standard of the gravel road, which as indicated above, is already showing early signs of stress.

## **7. KEY SUCCESS FACTORS**

Clearly, the Amadiba community-based labour-intensive road construction project can legitimately be considered as one of the more successful project of its type. Given developing countries' commitment to poverty alleviation, employment creation and local economic development, it is important to seek to understand the key success factors associated with the project that could become the fulcrum for future implementation processes of similar projects:

- Community-based projects by definition depend on community support to sustain them. The community has to show that it needs this road infrastructure investment. In this case, the community, through a not-for-profit organisation approached the CSIR for assistance in upgrading their road. This meant that the community had vested interests in the success of the project and diligently worked towards that. Resource mobilization was thus relatively easy given the beneficiaries' commitment and willingness to get involved in project design and implementation. Where a community has not shown such enthusiasm, a multi-sectoral and gender-sensitive approach, which starts with the

condition of the community (including the most disadvantaged), their resources, aspirations and challenges, could be adopted to arrive at a candidate project that would be supported by the relevant communities.

- Communities need a rallying point to enlist their continued cooperation as well as for them to approach any assignment with a singleness of purpose and commitment. In this regard, a premium was placed on getting both the approval and active support of traditional and political leaders in the Amadiba area, as well as some influential opinion leaders. Enlisting these community leaders increased the social acceptability of the project and enhanced its “value” to prospective participants from the community.
- Beneficiary communities are often not homogeneous, and sometimes have overt conflicting interests. It is thus often difficult to maintain the required level of community interest and support for projects over an extended period for successful completion. A social consultant, who is trusted, respected and perceived as an honest broker, should be an integral member of the project team. In this project, such a consultant was hired to mobilize and galvanize the community around the benefits of the project, as well as to explain and to iron out potential mine fields, such as the level of funding available, wage rate and payment policy, and project implementation modalities. This also had the effect of entrenching transparency in project management – an essential ingredient for pre-empting conflicts. The social consultant also sought to mobilize the community to actively influence the direction and execution of the project rather than merely seek to receive a share of project benefits. The project thus benefited from local knowledge systems, especially with regard to the alignment of the road.
- Governance issues in the management of community-based projects are critical to the success of candidate projects. The need for a legitimate, balanced and representative institutional framework underpinned by a consistent management structure, which is appropriately located in the overall scheme of things (e.g. it could be located within the ambit of and relate to an integrated rural development framework), cannot be over-emphasized. In this case, for instance, a project steering committee consisting of all relevant stakeholders and with appropriate feedback mechanisms to both the local Integrated Development Plan and the Provincial Growth and Development Strategy, was able to navigate potential conflict areas such as negotiating acceptable wage rates [below minimum wage] with the community, selecting local candidates to constitute a construction management team, as well as developing a framework for recruiting labour. This platform allowed for continuous learning by incumbents, allowing sufficient flexibility and robustness in project implementation. Because of its legitimacy, the PSC was also able to follow to the letter, the provisions of the Code of Good Practice for Special Public Works Programmes, including consistent job/task descriptions, which enhanced transparency and fair play in project management.
- To engender a substantial impact on the community during the life of the project, and sustaining that over a longer period, a significant amount of project funds need to remain within the community to feed local economic circuits with a view to enhancing project multiplier effects. It is also crucial to minimise leakage of project funds outside the community to maintain and eventually build a surplus on the village’s balance of payments. The Amadiba road project demonstrates this truism relatively eloquently, e.g. with the exception of the construction of low-level bridges, machinery (tools and small plant procured from outside the local municipality) was consciously used sparingly on the project to minimise leakage of project funds. In fact, the project team proactively sought to plug potential leakage areas, for instance, materials especially gravel and haulage services were sourced locally. As indicated elsewhere, because sixty percent of direct beneficiaries were women, project earnings were mostly employed in the community. In addition, by employing the CSIR as both the civil engineering consultant as well as the contractor, the project saved money that was

redirected at employing more villagers. It is not surprising therefore that, while the total project value was R9.63 million, R6.7 million [or close to 70 percent] was earned directly by the community. In addition, 64 percent of this amount was disbursed to the greater majority of community members working on the project illustrating the spread of community benefits derived from the project.

- To ensure sustainability, it is also important to meaningfully involve the responsible local authority both in the administrative structures e.g. to serve on the various project committees, as well as to expose it to operational aspects of the project at the coalface. Such a capacity building exercise is much more likely to ensure not only that the project is maintained, but also that such investments could be replicated. Such authorities would also be more likely to perceive the value of developing and nurturing the nascent construction enterprises created as part of the project, by providing them with an environment and opportunities to tender for manageable contracts, thereby building a cadre of skilled entrepreneurs to drive local economies. They would also be more attuned to the value of community involvement.
- Women-headed households are a common feature, particularly in rural areas (Mashiri and Mahapa, 2002), for many reasons, chief amongst which is migration of men to greener pastures especially in urban areas. Given that women have a societal obligation to look after their families (*ibid*) they are less likely to migrate from their villages but are more likely to remain committed to these community-based projects. Building the capacity of women to be meaningfully involved in such projects guarantees sustainability particularly with regard to maintenance. Good practice examples abound in the project under review. For example, of the 1,700 villagers who were employed on the project, 60 percent were women. Although there were fewer women in management positions [18 percent], clearly, there was undivided and indivisible commitment to the empowerment of women. It is also of interest to note that the incomes that women earned on the project were largely employed to pay school fees, buy provisions and agricultural inputs from local shops, thereby reducing leakage of project funds out of the community. It is thus important not to ignore, underplay or misunderstand gender issues in community-based labour-intensive projects of this nature, but to seek to mainstream them.
- Payment policies can make or break a labour-based project, for example, delayed payments often stymie progress. On this project, wage payments were initially made into a commercial bank by special arrangement. Given the small amounts and the withdrawal patterns of poor households, the bank charged the account holders relatively significantly in relation to the wages. Thus, for most villagers on the project, the bank charges became unbearable, and they agitated for change involving direct payment to villagers on site. Although this was risky, it was nevertheless implemented, pointing not only to the robustness of the administrative structures, but also to the level of community involvement in project implementation. Given the risks associated with administering such a big paycheque in the open, points to the effectiveness of law enforcement efforts as a result of the improved transport environment.
- Labour-intensive productivity depends on adequate management (McCutcheon et al, 2000). Organization of activities by the contractor must be properly planned and efficiently executed. On this project, the contractor in association with the construction management team managed the project effectively, including capacity building and training of project beneficiaries, thereby raising productivity substantially, as well as completing the project on time, budget and according to specifications.
- Given that over eighty percent of expenditure on infrastructure in South Africa, as is the case in most developing countries, is provided by government [national, provincial, local, and parastatal], government is essentially both a client and a customer (McCutcheon, 1999). For community-based labour-intensive projects such as the one

reviewed here to be successful, government needs to manifestly show undivided and indivisible commitment not only to the objectives of the incumbent project, but also to the overarching strategic aims of poverty alleviation and growing of local economies. The government was equal to the task on these issues.

## **8. CONCLUDING REMARKS**

Driving along the Amadiba road and speaking to villagers, it is clearly evident that the road has brought a new lease of life to both direct and indirect beneficiaries of the project supported by measurable direct and tangible benefits. The balance of evidence suggests that the project has not only achieved its intended objectives as enumerated above, but has also triggered a number of forward and backward linkages whose benefits cannot be directly or indirectly measured and quantified. Evidently, the project has had a positive impact on the socio-economic trajectory of the Amadiba community in general, and especially those fortunate enough to live along the entire length of the road.

A final strand of thought is evident – while the road has contributed significantly to the apparent improved quality of life for the Amadiba community, it must be remembered that rural development is an integrated multi-sectoral activity. Other essential services such as reticulated water and electricity, improved sanitation, better schools, more health facilities, better telecommunications and more job opportunities are required to effect permanent material changes and achieve sustainable livelihoods. This is borne out by the fact that community priorities shifted after the construction of the Amadiba road to reflect the many other development challenges that affect it. In this regard, improvement of roads and transport was toppled from its pedestal as the community's highest priority and relegated to fifth position, trailing behind the provision of employment, small enterprise development, the improvement of health care and educational facilities. It is thus vital for public and private stakeholders to ensure that this investment is supported by other development endeavours so as to entrench sustainability even after development impulses from the outside are gone.

## **9. REFERENCES**

- [1] Alderman, R. 2001. Combining census and survey data to construct a poverty map of South Africa. Pretoria.
- [2] Calvo, C.M. 1998. Options for managing and financing rural transport infrastructure. World Bank Technical Paper No. 401, World Bank, Washington, DC.
- [3] European Commission for Development, 2002. Lesotho Highlands Water Project. Publisher unknown.
- [4] Howe, J. 1999. Poverty Alleviation: Transport Policy and Socially Sustainable Development. Working Paper T&RE – 25. World Bank Transport – Expo 99. “Transport for people in the new millennium”, April 12-16, 1999, Washington DC.
- [5] Howe, J. 2001. Socio-economic impact of rural transport interventions and poverty alleviation. Rural Transport Knowledge Base. Rural Travel and Transport Program, 2001, World Bank, Washington DC.
- [6] Kessides, C. 1995. The contributions of infrastructure to economic development: A review of experience and policy implications. World Bank Discussion Paper Number 213, World Bank, Washington, DC.

- [7] Levy, H. 1996. Morocco – Socio-economic influence of rural roads: Fourth Highway project. The World Bank: Operations Evaluation Department. Impact Report No. 15808.
- [8] Little, R.D. 2003b. Amadiba road traffic study. Internal CSIR report, Durban, South Africa.
- [9] Islam, R. and Majeres, J. 2001. Employment-intensive growth for poverty reduction: What can labour-based technology in infrastructure contribute? Work 2001, First International Conference on Employment Creation in Development, Johannesburg, South Africa.
- [10] Mashiri, M. and Mahapa, S. 2002. Social Exclusion and Rural Transport: A Road Improvement Project. In Fernando, P and Porter, G [ed] *Balancing the Load: Women, Gender and Transport*, ZED Books.
- [11] Mashiri, M. 2004. Community responses to HIV/AIDS along transport corridors and nodes and areas of infrastructural development. IFRTD Newsletter [edition still to be published].
- [12] McCutcheon, R.T. and Steenderen, W.P.C. 2000. Employment aspects of the rehabilitation of the Great North Road. Working Paper W99/005. Department of Civil Engineering, University of the Witwatersrand, Johannesburg, South Africa.
- [13] McCutcheon, R.T. 1999. Southern African muscle-power: A great force in nature. Working Paper W99/004. Department of Civil Engineering, University of the Witwatersrand, Johannesburg, South Africa.
- [14] Stilwell, T. 1999. The economic rationale and modalities for rural infrastructure development: Developmental local government in rural service delivery. Development Paper 140, Development Bank of Southern Africa, Midrand, South Africa.