

MOZAMBIQUE

Mozambique

Re-opening Mozambique

Lessons learned from
the Feeder Road Programme

2002



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Preface

This booklet tells the remarkable story of the Mozambique Feeder Road Programme (FRP), the success of which is a tribute to the Government and people of Mozambique and their development partners. Lessons that have been learned during the programme are highlighted, and intended to serve as a guide to those charged with designing and implementing similar programmes in Mozambique, or elsewhere in the world.

Labour-based methods for road construction were first established in Mozambique through pilot projects in the early 1980s. Following the Peace Accord in 1992, these methods were applied to a national programme, designed to rehabilitate roads in virtually every part of the country. In the process, the FRP has been transformed from a stand-alone programme to an integral part of the Directorate of Regional Roads in the Mozambique National Road Administration.

The FRP, using labour-based methods for the rehabilitation and maintenance of roads, has contributed significantly to the economic and social recovery of a nation torn apart by civil war. The re-opening of roads has enabled the government to re-establish social services in remote areas. Rural farmers are now able to access markets to sell their surplus agricultural produce. Vital skills have been transferred to thousands of Mozambicans, including those involved in the overall management of the programme, and those tasked with implementing the works on site. In addition, the FRP has created valuable employment opportunities for rural communities and provided a direct injection of cash to needy households struggling to recover from the effects of war.



Acknowledgements

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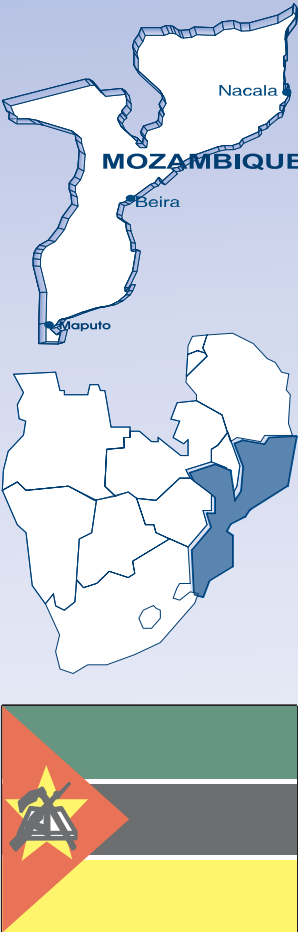
A full list of contributors is included in Section 13 as are the picture credits



Map of Mozambique

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REPUBLIC OF MOZAMBIQUE	Basic Information	
	<p>Population Area Independence Political System Capital city Languages</p> <p>Religions</p> <p>Natural resources</p> <p>Exports</p> <p>Currency GDP/capita GDP growth Inflation Life expectancy at birth Infant mortality</p>	<p>15,740,000 (1997 census) 799,390 sq km 25 July 1975 Multi party democracy Maputo Portuguese (official), plus 13 main national languages, English African traditional Christian, Moslem, Hindu Hydro-electric power, timber gas, coal, minerals, farm land Prawns, cotton, tea, sugar, cashew, timber, copra Meticais (mt) US\$ 128 (1997) 8% (1997) 5.9% (1997) 46 years 116 out of 1,000 children die before the age of one</p>
Source: Mozambique government (www.mozambique.mz)		

Acronyms

ANE	Administração Nacional de Estradas (National Road Administration)		Construction and Maintenance of Roads and Bridges)
ASIST	Advisory Support Information Services and Training for Labour-Based Practitioners	FRP	Feeder Roads Programme
CCM	Conselho Cristão de Moçambique	ILO	International Labour Organisation
CMU	Core Management Unit	KfW	Kreditanstalt für Wiederaufbau
DEP	Departamento de Estradas e Pontes (Department of Roads and Bridges)	NORAD	Norwegian Administration for International Development
DER	Direcção de Estradas Regionais (Directorate of Regional Roads)	ROCS	Roads and Coastal Shipping Project
DET	Divisão de Estradas Terciárias (Tertiary Road Division)	RTTP	Rural Travel and Transportation Programme
DANIDA	Danish International Development Agency	SAMAT	Southern Africa Multi-Disciplinary Advisory Team
DFID	Department for International Development	SIDA	Swedish International Development Cooperation Agency
DNEP	Direcção Nacional das Estradas e Pontes (National Directorate of Roads and Bridges)	TA	Technical Assistance
DPOPH	Direcção Provincial das Obras Públicas e Habitação (Provincial Directorate of Public Works)	UNCDF	United Nations Capital Development Fund
ECMEP	Empresa para a Construção e Manutenção das Estradas e Pontes (Company for the	UNDP	United Nations Development Programme
		USAID	United States Agency for International Development
		WFP	World Food Programme





Bad road during rainy season



A result of war

1 Building a nation

Mozambique is a vast country with a coastline comparable in length to the eastern seaboard of the United States of America. The land rises from the coastal strip, which is broad in the south, through a wide plateau to the Zimbabwe Eastern Highlands in the west and the Malawi Shire Highlands and Lake Malawi in the north. The climate is tropical in the centre and the north, and sub-tropical in the south.

The country is endowed with extremely valuable natural resources. These include major mineral deposits, natural gas, hardwood timber, agriculture, wildlife and fisheries. There is a vast network of rivers emptying in to the Indian Ocean, the most prominent of these being the

Zambezi, which boasts the massive Cabora Bassa hydro-electric power scheme.

At the time of Independence from Portugal in 1975, Mozambique had developed large agricultural estates producing high value crops such as cashew nuts, coconuts, cotton, tea and sugar for world markets. Road and rail links provided access to deep sea ports from the



Varied countryside



Traffic on feeder roads



Broken culverts



Bad road during rainy season

central African interior. Tourism flourished on the pristine beaches of the Indian Ocean.

Following independence the country lost virtually all managerial and technical skills in both the private and government sectors through the exodus of Portuguese settlers. The new government of the Frente de Libertação de Moçambique (Frelimo) adopted socialist policies designed to redress historical inequalities. This resulted in the nationalisation of property, industries and agricultural estates abandoned by the Portuguese. Lacking the necessary skills and managerial capacity, and faced with a civil war against the guerrilla group Renamo, the economy collapsed. Much of the extensive network of roads and railways was either neglected or destroyed, and the country's rich natural resources lay undeveloped.

"it was only when the road was rehabilitated that we knew the war had really ended."

Small scale farmer in Mocuba District,
Zambézia Province

This booklet tells the remarkable story of the contribution of the Feeder Road Programme to the reconstruction of that infrastructure, and of the nation itself. Despite the devastation of the civil war and persistent natural disasters including drought and floods, Mozambique now boasts one of the fastest growing economies in Africa. This can be attributed in part to the decision taken by the government to prioritise the reopening of roads to as many districts as possible, and the role of the FRP in achieving this objective.

The FRP, which started in 1981, uses labour-intensive methods to construct and maintain rural feeder roads. The programme has contributed significantly to social reconstruction through the provision of employment and the training of Mozambican nationals both for site jobs, and for supervisory and managerial posts. The programme is implemented by the Government of Mozambique through the National Road Administration, with support from various international donors, and technical assistance from the ILO.

During the past 20 years of the Feeder Road Programme, there has never been a time without significant challenges. This booklet tells how those challenges have been addressed, sometimes successfully and sometimes, with hindsight, not so successfully. By reflecting in this way on the past, it is intended that important lessons can be learned to guide those responsible for the next phase of the Mozambique Feeder Road Programme, and similar programmes elsewhere in the world.

Feeder Roads provide the links between the population centres at district level, and between these centres and the Primary and Secondary Road network. They have low or very low traffic. The Government will, in a decentralised manner, promote the permanent rehabilitation of feeder roads, focussing mainly on those that have heavier traffic. Labour-intensive construction methods will be employed in the construction.

The Mozambique Road Policy, 1999

2 Building a programme

External assistance for labour-based road works was first provided to the Mozambican government in 1981. The Norwegian government funded a pilot project in Zambézia Province, with technical assistance from the International Labour Organisation (ILO). The project was based in the central town of Mocuba, and focussed on improvements to the road from Mocuba to the tea-growing areas in Lugela District. Labour-based construction methods were introduced, providing significant employment to the local population. Training was provided to Mozambican supervisors.

By 1983 the works were being severely disrupted by the civil war, which had broken out between the government and the RENAMO guerrilla group. A lorry travelling on the project road was blown up and the driver lost both legs. Shortly afterwards a concrete bridge on the project road was destroyed by explosives. In April 1983 a project tractor was hijacked by armed bandits who set fire to the tractor, having beaten up the driver. Eventually it became impossible to continue working in Zambézia, and a decision was made to transfer the project to Maputo Province.

Credibility of the programme was greatly enhanced by its continuous presence

We received a telex from UNDP via the Cha-Madal saying 'you are requested to come to Maputo to attend a meeting. Please do not forget to bring the wife and the baby.' As I was new to the project I did not understand the significance of the message until it was explained that the message was in code and the meaning was that we were to evacuate immediately due to the security situation!

ILO Technical Adviser

The work continued in Maputo Province with funding from the Government of Sweden. Before long these operations were also being severely constrained by the security situation, and the project was forced to focus mainly on training until 1987, when it was decided to establish road construction brigades in Gaza and Inhambane Provinces. In 1989, brigades were formed in Manica province, with support from the German Government. A major achievement of the FRP was its ability to continue working despite the poor security situation. This gave the programme experience and credibility, and enabled its rapid expansion after the Peace Accord.



Some members of the FRP team in the early days

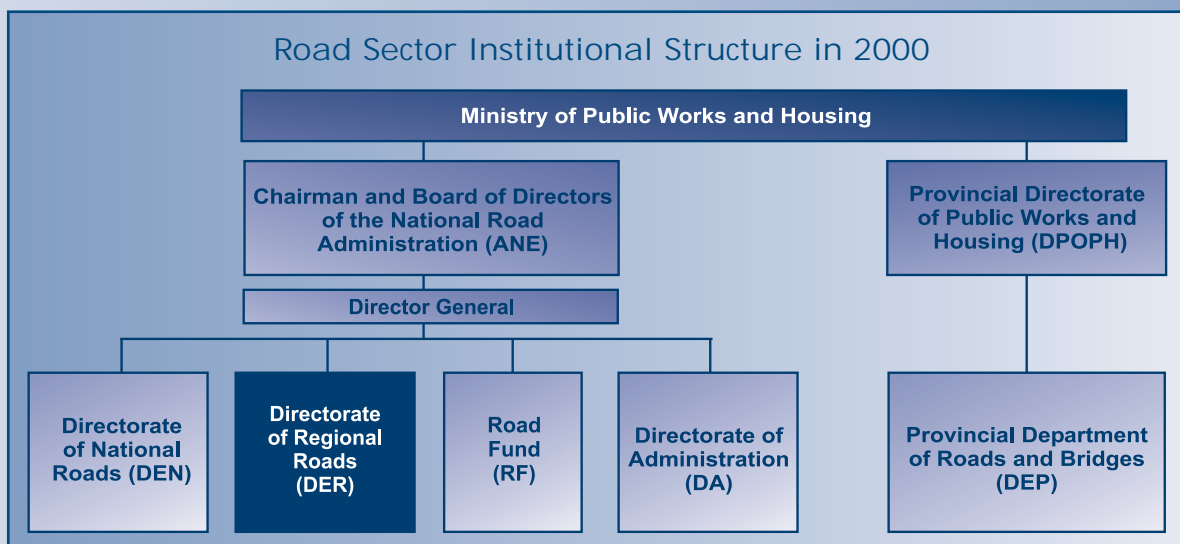
Expanded Phase

With the return of peace in 1992, the "expanded phase" of the Feeder Road Programme commenced. Based on the experiences gained from the work in Gaza, Inhambane and Manica, brigades were established in a further six provinces. Rapid progress was made, resulting in the eventual re-opening of over 5,000 km of feeder roads by the year 2000. This was an essential contribution to the re-settlement of large numbers of people who had been displaced by the war, and the revival of large areas of previously abandoned land.

The "expanded phase" of the FRP was considered by the government as a component of the Roads and Coastal Shipping Project (ROCS). The ROCS Project, which was coordinated by the World Bank, also included major improvements to the primary road network and a reorganisation of coastal shipping services.

Implementation

The Feeder Road Programme is presently housed within the Directorate of Regional Roads (DER), in the National Road Administration (ANE). ANE is a semi-autonomous road authority responsible to the Minister of Public Works and Housing (MOPH). Prior to the formation of ANE in 1999, all road activities were managed by the



National Directorate of Roads and Bridges (DNEP), also within the MOPH. Perhaps the greatest achievement of the Feeder Roads Programme was its transformation from a stand-alone project to an integral part of DER.

Most of the FRP road works have been undertaken by brigades established within the ECMEPs, which are state-owned provincial road maintenance companies. The use of these state companies enabled the government to rapidly mobilise construction brigades in the provinces, and also to achieve wider objectives, such as the minimum number of women required to be employed. The government was able to undertake works for which no other means existed, and in the process created a valuable contracting resource in the provinces.

In line with recent trends in Mozambique and elsewhere in the world, focus has switched to increasing the involvement of the private sector in execution of public works. Starting in 1995, some private contractors have participated in the programme through contractor development projects in Zambézia and Nampula

Perhaps the greatest achievement of the Feeder Roads Programme was its transformation from a stand-alone project to an integral part of DER

Provinces and, more recently, for emergency repairs to flood damage in the south of the country.

The site works are supervised by the Provincial Departments of Roads and Bridges (DEPs) within the Provincial Directorates for Public Works and Housing (DPOPH).

The ECMEPs became a vital part of the local road construction industry. During many years, while no private contractor was willing to risk their resources in war zones, the ECMEPs were the only ones available to maintain the roads in those areas. As a result, many of ECMEP's staff suffered wounds, and even loss of life.

Wilbur Smith Associates, 1993



Training sites on Pilot Projects, early 1980s

3 Building roads

The Feeder Road Programme has contributed to the improvement of the road network in every province of Mozambique. The high level of coverage of FRP activities has been possible through the use of standardised labour-based methods. These methods are now accepted as the norm in Mozambique.

Countrywide standardisation of labour-based methods has increased their acceptance

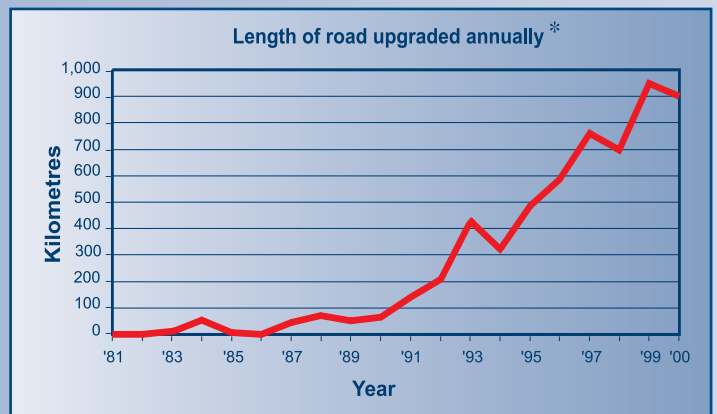
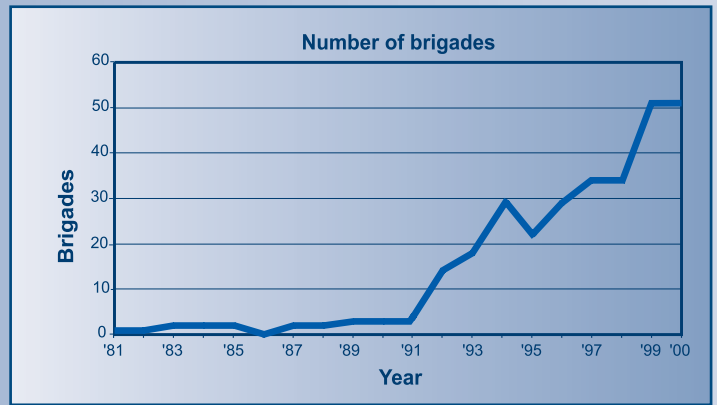
The Programme is responsible for upgrading and maintaining unpaved roads in rural areas. Most of these roads carry very little motorised traffic but are part of the national classified road network. Many provide the only access to district centres. Others provide essential access for communities to the primary road network.

When the "expanded phase" of the FRP was launched in 1992, many feeder roads were impassable following years of neglect during the civil war. Some were overgrown with vegetation and many were impassable due to washed-out bridges and culverts. Some roads were regarded as unsafe due to the possible presence of landmines.

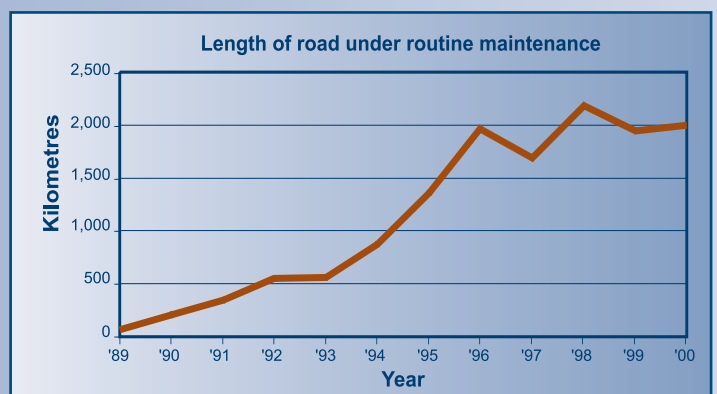
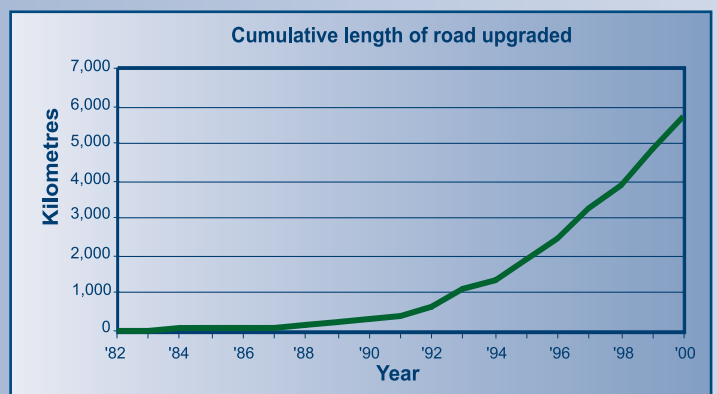
Reconstruction

The initial objective of the FRP was to restore the minimum standard of road recognised by the government. This included the construction of a basic road cross-section with a six-metre wide carriageway, and a gravel wearing-course. The construction brigades were geared up to undertake this work using standardised techniques that were easily understood by the field engineers and technicians responsible for the work on site.

Initially the government was concerned about the relatively low output of each construction brigade, which was only about 2 kilometres per month. But by 1994 the government had established 30 brigades, whose cumulative efforts resulted in significant output of rehabilitated road. By the year 2000 more than fifty ECMEP brigades and private contractors were operational within the FRP. Over 5,000



*The high output of upgraded road in 1993 was due to over 200km improved with only minor spot improvements required. Production did, however, drop in 1994 due to various delays in the procurement of equipment for the brigades, provision of housing for technical advisors and payment of wages to the workers.



kilometres of roads were upgraded between 1992 and 2000.

Over 5,000 kilometres of roads were upgraded between 1992 and 2000

From 1994, roads were not gravelled in areas where the existing soils were of adequate strength to allow vehicles to pass in all weather conditions. This approach is known as “partial gravelling”, and resulted in significant cost savings.

In the late 1990s the programme started to adopt the spot-improvement approach for roads with very little motorised traffic. Existing tracks were only improved at the sections where they were impassable. Minimal work was undertaken where the track already provided a reasonable level of access for the traffic using the road. Erosion was controlled by not disturbing the existing vegetation cover.

The spot improvement approach was found to be unpopular with some communities, transport operators and provincial authorities, who expected the standard road cross-section to be provided.

Road standards need to be flexible to take account of local variations in traffic, soil conditions, climate and terrain

However, the approach resulted in significantly reduced construction costs, and was appropriate to the amount of traffic using those particular roads.

In the flat sandy areas along the coastal belt, the FRP faced significant technical challenges. The coastal belt experiences high rainfall and the sandy soils are highly prone to erosion. Experimental work

carried out in the 1980s established important principles such as raising the level of the existing road to ensure that rainwater could be drained away from the road. In the past, roads had been maintained by grading loose sand to the sides. Result was the lowering of the road level and the creation of banks of sand along the verges. Rehabilitation along the existing alignment did not always correct this, and in some cases, a new alignment was chosen. Experimental work in the late 1990s focused on stabilising the road wearing-course by mixing the local sandy material with bitumen emulsion to provide an erosion-resistant surfacing.

Continuous research and development is needed to ensure suitability of standards

Maintenance

In the late 1990s the government began to broaden the focus of the Feeder Road Programme from the

Sandy soil poses challenges



Trials with soil stabilisation

reopening of roads to include maintenance. By the year 2000 over 2,000km were under routine maintenance. Periodic maintenance of roads built in the early stages of the Programme became a feature of the annual maintenance plans. Tenders for larger maintenance contracts involving private contractors were administered centrally by ANE, but most of the responsibility for planning and organising routine maintenance was given to the provincial authorities. The objective was to achieve greater efficiency and lower overall costs.

Long-term government commitment to maintenance is essential for the success of road rehabilitation projects

The organisation of routine maintenance is best delegated to provincial authorities

Routine maintenance by the lengthman system was introduced to the FRP during the pilot projects in the early 1980s. Local residents were paid to maintain a specified length of road, normally about 2km. Due to high rainfall and poor soils in some areas, it soon became apparent that the amount of maintenance work required was too great for individuals to undertake and a gang-based system was adopted. The lengthman system was also implemented in the “expanded phase” of the FRP, although in some areas it was found to be ineffective due to the difficulty of supervising the large numbers of dispersed workers.

In the late 1990s this led to the adoption of a “level of service” approach, which requires contractors to maintain the road to an acceptable condition defined by the average speed of a vehicle using the road and a maximum number of defects to the carriageway and drainage system. As long

Adequate supervision is essential on site to ensure that maintenance funds are well spent

as the road is maintained in this condition, the contractor is paid a monthly fee. The contractor is free to decide the most profitable and effective working method. In some cases lack of supervision capacity in the provinces has resulted in poor performance by maintenance contractors, and inefficient use of maintenance funds.

High periodic maintenance costs can result from lack of effective routine maintenance

The cost of routine maintenance on the Feeder Roads Programme has tended to be high. In some cases the cost is high because contractors are required to undertake significant partial repair or periodic maintenance works over much of the road prior to commencing routine maintenance. This is often a result of long periods when no effective routine maintenance has been carried out. In some areas frequent periodic maintenance is required because the roads are constructed with unstable sandy materials.

The sustainability of all the Project activities depends on the ability to maintain the assets created by the labour-based road operations. From this point of view it is encouraging to observe the amount of maintenance work which is being carried out by both the ECMEPs and private contractors. It is unusual to find a government prepared to put rehabilitated roads under immediate maintenance regimes when the amount of work required initially is minimal. The standard of work being carried out was generally good but, as always, there are areas which could be improved.

FRP Final Evaluation, 2000

Before rehabilitation





After rehabilitation



4 Building by hand

From the outset, the FRP sought to use labour and light equipment rather than heavy machines to carry out the road building activities. This decision was due in part to the success in the 1970s of labour-based road construction activities in neighbouring Malawi, and in Kenya, where it had been shown that labour could compete well with equipment in terms of both price and quality. The payment of wages to local communities was seen as an important means of helping people to re-establish their livelihoods following the disruption of the civil war. The decision was also born out of necessity, as there were immense difficulties inherent in importing, operating and maintaining heavy equipment. Roads built by hand were found to be more durable than those constructed by machines due to greater attention to detail in the construction process.

Comparisons between equipment-based and labour-based contractors in Mozambique indicate that the cost of construction is approximately equal for low-traffic feeder roads. The quality of the work is comparable if equal amounts of supervision and control are provided, but local labour-based contractors can generally be mobilised quicker than equipment based contractors, particularly if equipment must be brought from outside the country. The benefits to the local economy of using labour-based methods are not accrued if equipment-based methods are employed, and the use of equipment-based methods results in significantly more environmental damage due to the movement of large machines.

Employment Creation

The concept of labour-based construction is based on the principle of using manual methods to complete tasks otherwise done by machines. Tasks normally done by hand for labour-based road construction include clearing of trees and bushes on the road alignment, removal of topsoil, and excavation of soil along the sides



Bush clearing

of the road to form the side drains. The soil from the drains is used to form the road camber. If additional soil is required to raise the level of the road, it is excavated from borrow-pits alongside the road and transported on to the road in wheelbarrows. Where the quality of the insitu soils is poor, it is necessary to use selected gravel material to provide a durable wearing surface. The gravel is excavated from borrow pits by hand and loaded onto tractor-drawn trailers or trucks for transport to the road. The gravel is watered and compacted using towed water bowsers and rollers.

When equipment-based methods are used for the construction of gravel and earth roads, less than 5%

200 labourers can do the same work as one bulldozer

of the total cost of the project is normally spent on wages. The use of labour-based methods can result in an increase in this proportion to as high as 50%. Most of the tasks are similar to basic agricultural activities, and can be undertaken by unskilled workers with little training.

Removal of top soil



The use of labour-based methods on the FRP has resulted in the creation of about 8 million worker-days of employment in Mozambique. More than 40,000 rural people have worked on the programme.

About 8 million worker-days of employment have been created

Labour force

The labour force is normally recruited locally. Community leaders are consulted in advance of the recruitment to explain the conditions of service and wages rates. The leaders are asked to ensure that the poorest members of the community are given an opportunity to participate. Generally the FRP has been able to recruit sufficient labourers to complete the works.

The FRP adopted a national target of 25% participation of women in the workforce, but each province sets its own targets according to local experience and local conditions. The average at present is 19%.

Average participation of women in the FRP is presently 19%

In the pilot phase of the FRP the daily wage rate for labourers was about US\$2.50. For most of the “expanded phase” of the FRP the wage rate has been about US\$1.20 per day, reflecting a major decline in the value of the local currency. The FRP wage rate corresponds with the government statutory minimum wage.

In some cases, normally where population densities are low, labourers have become almost permanent employees of the ECMEP brigades, moving with the brigades from one district to the next. This has led to a requirement for large site camps to house the workers. The impact of these camps can be significant, and has led to conflicts with local communities. Only supervisory and skilled staff should be employed permanently. .

The process of recruitment and demobilisation of the labour force should be continuous, providing fresh employment opportunities as the work reaches each community along the route of the road



Workers on a labour-based site



Typical Brigade

The typical brigade established within the provincial ECMEPS to undertake the rehabilitation works comprises:

- ▶ A foreman, works supervisors, mechanic and storeman (permanent employees)
- ▶ About two hundred labourers recruited from within the local community
- ▶ One high horsepower (~90HP) 4 wheel drive tractor
- ▶ Four or five low horsepower tractors and trailers (55-65HP recommended)
- ▶ Towed grader
- ▶ Towed water bowser and towed roller
- ▶ Towed fuel bowser
- ▶ Hand tools
- ▶ Mobile equipment repair and maintenance workshop
- ▶ motor cycle or supervision vehicle

The typical brigade size established by the ECMEPS was appropriate for full rehabilitation and gravelling of roads. But when private contractors were introduced to the FRP, and the focus of the programme changed from full rehabilitation to spot improvements and maintenance, it became apparent that flexibility was required in determining the size of the site teams. Some private contractors were not able to sustain a large scale operation, particularly through periods between contracts when they had little income.

Hand Tools

Hand tools used on labour-based sites include hoes, picks, shovels, spades, rakes and wheel-barrows. These tools are commonly used for other construction

When procuring hand tools and equipment it is important to ensure that clear specifications are provided to the suppliers

Drain and road excavation



The Labour-based brigade was rehabilitating the road linking the village of Julius Nyere with the EN1 in Gaza Province. The Road Inspector assigned by DEP to supervise the work refused to approve the monthly certificate because the colour of the materials used to construct the road shoulders was different from the material used to surface the carriageway. I had to explain to him that the material used for the shoulders was the natural material excavated from the sides of the road. The material used for the base was selected material in accordance with the recommendations of the laboratory and the specification as detailed in the contract. It took some time and on-the-job training to convince him that the construction procedures were correct and in accordance with the terms and conditions of the contract. In the end he approved the certificate for payment.

ILO Regional Adviser

activities and in agriculture, and many rural people are familiar with their use. In the early stages of the programme tools were unavailable locally, and most of the tools used on the FRP were procured centrally from international suppliers, and distributed to the provinces. This often resulted in delays. In some cases poor quality tools were received due to inadequate specifications.





Loading gravel

Off-loading gravel

Spreading gravel

However it is important to warn that tools readily available on the local market may not be of the required quality. The purchaser needs to make a decision on what suits her economically.

Local procurement of tools and equipment can help to boost local business

Supervision and Payment of Wages

Labour-based works require a high level of supervision, but in Mozambique there was a shortage of available supervisors. In some cases the quality of the work was below standard due to inadequate supervision. Training of supervisors was a priority activity for the FRP in order to provide the levels of supervision required. The problem was coordinating project start-ups to begin immediately after the training, which did not always prove possible.

Adequate supervision is an essential requirement for the success of labour-based construction projects

The effective motivation of large numbers of workers on construction projects requires an adequate cash flow for the regular payment of wages. Due to the large scale of the FRP,

Prompt payment of wages is essential if employment creation is to be maximised on construction projects

there were often delays in the payment of the contractor's invoices by the government. This resulted in delays in the payment of wages and tended to encourage the use of equipment.

Environmental Impact

Labour-based methods provide an environmentally friendly method of building roads. Environmental impacts such as fuel spills, noise, dust and excessive clearance of vegetation are far less severe than when equipment based methods are used.

Well-designed and managed labour-based road projects result in fewer negative environmental impacts than machine-based operations

The FRP activities did not contribute to any negative environmental effect in the areas of operation of the work. It would be worthwhile to mention that no major deviations from the existing alignments were made during the road rehabilitation. Also, all efforts were made to use the existing gravel quarries along the roadsides. Certain bush clearing was inevitable in most cases since the roads had not been used by traffic for a number of years resulting in growth of vegetation along the right of way of these roads.

5 Building with light equipment

Some items of equipment are necessary to support labour-based construction. Tractors and trailers or trucks are used for transporting materials to the road. Light-weight towed graders are used to spread the soil from the side drains to form the road camber before compaction. Towed rollers and small pedestrian vibrating rollers are used to compact the road base and the gravel wearing-course, and towed water bowsers are used for watering the road during compaction.

Procurement

Delays in the procurement of equipment for the FRP were common. This was largely due to government and donor bureaucracy, inefficiency in the ports, supplier invoicing errors and unrealistic delivery times. In some cases it would have been preferable to purchase equipment locally or in the Southern Africa region, but this was not possible under government and donor procurement rules, which required acceptance of the lowest price offered.

Delivery times for equipment procurement should be realistic to avoid delays later on

Clearing of equipment at various ports in the country has been another major constraint. The FRP faced serious difficulties on account of frequent change of rules and regulations of various agencies such as Ministry of Commerce, Customs, and ADENA. Six ASDI financed FRP district brigades in the provinces of Zambézia, Niassa and Maputo could not be established during 1993, as the equipment could not be cleared from the port.

Two Peugeot cars ordered for the Core Management Unit were not delivered and disappeared from the port of Maputo. It was very strange as the project had paid all of the warehousing costs and had even obtained registration numbers for these two cars and was subsequently informed by the port authorities that these two vehicles were never off-loaded at the Maputo port.

FRP Progress Report 1993

Maintenance

The supply of spare parts to remote areas and the availability of trained mechanics to ensure the continued maintenance of the equipment were also problematic. As a result, the FRP tended to over supply the brigades with equipment to ensure that they were always operational, and so able to achieve the high production outputs required by the government. The deployment of mechanical foremen advisers to provincial centres in the late 1990s significantly improved the quality of equipment maintenance. These advisers provided on-the-job training to their local counterparts, both in the mechanical aspects of



Tractor and trailer



Tractor and towed roller



Tractor and trailer



Tractor and towed grader



Culvert moulds

equipment maintenance, and in the implementation of equipment management systems.

Some makes of equipment were deployed to areas where no local agent existed. This resulted in no local availability of spares. Some types of equipment also proved inadequate for the tasks assigned to them. In particular, the 50 horsepower agricultural tractors were underpowered for the continuous hauling of loaded trailers and water bowsers in the difficult conditions found on some of the work sites. The decision to buy the smaller tractors was based on their lower price, which enabled more to be purchased. Although the site experience of the limitations of some items of equipment was fed back to the Programme management team, this did not always result in changes to existing procurement methods or equipment specifications. As a result, further purchases were made of the same unsuitable items.

The procurement of equipment for projects in remote areas should focus more on quality, suitability and back-up service rather than on price

Flexible project management and government/donor rules are required to ensure that lessons learned on site are fed back into ongoing project activities

By 1996 a significant proportion of the tractor fleet was out of service. Rather than replace the tractors, a contract was negotiated with a local agent to rehabilitate them. The Japanese government agreed to donate spare parts. This contract experienced delays due to slow payments by the government and lack of capacity at

some of the agent's provincial workshops. The condition of the tractors continued to decline as they waited for repair, which resulted in higher than expected rehabilitation costs. In hindsight, it is apparent that some of this work could better have been done in the ECMEP workshops, where local staff would have benefited from the experience gained.

Ownership and Use of Equipment

The Government allocated the equipment to the construction brigades who were only required to purchase fuel and spare

A sense of ownership by the users is essential if equipment is to be well maintained

parts. Ownership and depreciation costs were not charged to the brigades, and the full cost of owning and operating equipment was not reflected in the calculation of unit rates for the work. This resulted in a dependency syndrome, and lack of appreciation by the brigades of the true value of the equipment. The brigades lacked a sense of ownership of the equipment and therefore did not feel fully responsible for maintenance.

The full cost of owning and operating equipment should be met by the users, or equipment may be used in preference for tasks otherwise more suitable for labour

During the implementation of the programme, heavy earth-moving equipment was donated to Mozambique by foreign governments and deployed to the provinces.

The full cost of using this equipment was not charged to the ECMEPs. Sometimes this led to the use of machines for tasks that could have been done by hand, because the use of donated machines was cheaper and required less supervision than labour. Construction managers tended to use equipment to achieve the high levels of production demanded by the government.

"In the early days we were working on the Montepuez to Balama road in Cabo Delgado. CCM donated a motorised grader, which they had been using and no longer needed. Everyone was very excited by this but I asked that they wait for me to go and get the mechanic in order to check the machine over and instruct someone how to operate it. I left to return a couple of days later with the mechanic. We discovered that the site team could not contain their desire to get going and had graded 26km of road. Unfortunately they had left the handbrake on throughout this work. It took a year and a half to get the machine going again!"

ILO Technical Adviser

6 Building communities

At the time of the Peace Accord in 1992, the Feeder Road Programme was one of very few programmes in Mozambique which could be expanded quickly to provide benefits to large numbers of people throughout the country. The programme was therefore an important vehicle used by the government to unite communities in a common purpose following the disruption of the civil war.

During the civil war, some five million refugees fled to towns and neighbouring countries. The refugees were returned to their home areas following the Peace Accord. But this coincided with a severe drought across southern Africa and the returnees were faced with the task of completely rebuilding their livelihoods under extremely difficult circumstances.

Food Distribution

In response to the drought, the World Food Programme and the government organised widespread food distribution. Those returnees that obtained employment on the FRP received immediate assistance in the form of

subsidised food rations. The food component of the workers' payment enabled many households to cope until their first harvest.

The food rations were an optional component of the worker's wages. The workers were paid their full salaries in cash and then decided whether to purchase food. The full requirements of a family of five cost half the value of the monthly wages. The WFP

delivered the food supplies to the provinces and there the construction brigades took over the responsibility for handling, transport and distribution.

Later in the programme, once agricultural production in rural areas had recovered, the need for food distribution diminished and it was phased out. In some cases it became cheaper to buy food locally for the workers than to transport it to the work sites from the WFP depots.

Large-scale food distribution can be used in conjunction with public works programmes to provide for immediate needs, but in the longer term food distribution may disrupt local agricultural marketing



Rural communities



Social and Economic Benefits

The immediate benefits of the FRP in the form of wages and food distribution were followed by social benefits as a result of the improvements in road access. More rapid and safer access to health facilities was ensured. Though improved access increased the risk of AIDS transmission, it also allowed educational outreach teams to promote awareness about health risks. Immunisation programmes for children were set up, and the government began to re-establish schools and clinics.

Large-scale road construction programmes can be extremely positive in re-establishing dislocated communities and promoting health and education facilities

The general impression communicated to the Evaluation Team in Zambézia and Nampula provinces is that the FRP has ensured more rapid and safer access to health units and has permitted educational outreach teams to transmit ideas about STDs/AIDS more easily.

FRP Final Evaluation, 2000

The FRP also contributed to economic recovery in rural areas. Many programme participants used their wages to buy bicycles, which provided significantly improved mobility and a source of income generation. Training programmes led to the development of local skills and self-belief. The improvements to the road network led to the introduction of new crop varieties, increased agricultural production and increased market activity. In the latter part of the 1990s, the FRP saw the development of local businesses through the training of small local contractors.

Road improvements have led to new crop varieties, increased agricultural production and increased market activity



Rural labourer

When the “expanded programme” started in 1992 there were virtually no transport services on feeder roads in many areas. Transport services improved with the rehabilitation of the roads, but gains from the FRP would have been greater if there had also been special government or donor interventions to improve transport services. Most feeder roads carry very little motorised traffic because in many parts of Mozambique very few people can afford to own vehicles.

Roads are not enough. Economic development also depends on an increase in traffic using the new roads

Landmines

In some areas the reopening of roads was closely linked to programmes to clear landmines laid during the civil war. The mines posed an extreme hazard to local communities and disrupted development projects. But the FRP decided to adopt a pragmatic approach, which ensured that work could continue on the roads. This included constant vigilance, and close liaison with local communities, who invariably had information on the possible location of mines. On roads where mines were suspected, de-mining teams were deployed before the roadwork commenced. Only one, non-fatal landmine accident has been reported on an FRP site since the start of the “expanded phase” of the Programme in 1992.



Mine clearing

7 Building with equal opportunities

When the Feeder Road Programme started in the early 1980s, no women were employed on the programme. Later, the employment of women became a primary objective. As a result, women are now employed as labourers on the work sites and have been trained for skilled tasks such as supervision and tractor driving. In addition, three female engineers are now employed in the Directorate of Regional Roads.

Gender Unit

A Gender Unit was established within the Feeder Road Programme in 1996. The objective of the unit is to increase opportunities for female staff and thus to help women to share more equally in the benefits of the programme. A major achievement of the Gender Unit was its integration, in the year 2000, into the structure of the National Road Administration. The responsibilities of the unit were expanded to include all social and environmental aspects of road sector activities in Mozambique, including those not directly linked to the Feeder Road Programme.

A major achievement of the Gender Unit was its integration into the National Road Administration

The Gender Unit has established a "Gender Nucleus" linked to the ECMEP brigades in each province. The gender nuclei are tasked with encouraging the increased participation of women in the programme.

They assist the ECMEPs to agree target percentages for female participation. In their province, they also develop and maintain links with other government agencies and NGOs concerned with gender issues, and sensitise the staff of the ECMEP and the DEP as well as local communities to the importance of employing women. The nuclei carry out regular site visits to identify factors contributing to reduced female participation, and work to reduce these factors. The activities of the gender nuclei have resulted in a steady increase in the number of women participating in the FRP.

Active promotion of gender issues and the establishment of a gender unit have led to increased involvement of women

"The gender unit was initiated with a high level of interest from all parties. After a while this interest all but disappeared. But having seen the involvement of women in action, people have gradually become more convinced. They are still not 100% aligned to the idea, so there is still more work to do."

ANE Gender Adviser

Empowerment of Women

By training women for skilled jobs such as supervisors and tractor drivers, the FRP has succeeded in raising the profile of women in the workforce. This has

Woman tractor driver





Women at work

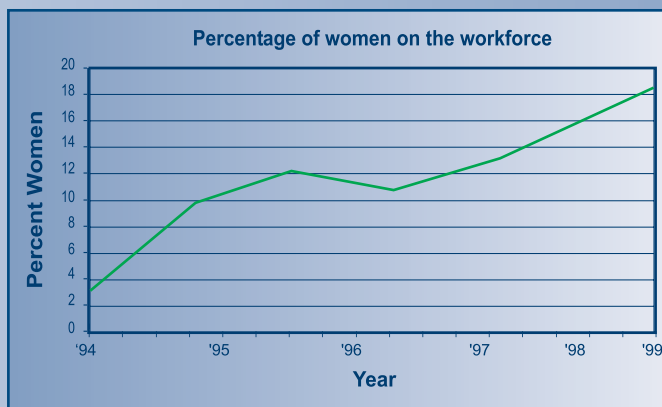
encouraged more women to seek participation in the FRP, and these women have demonstrated that they can make a meaningful contribution to the programme. This contribution has been recognised by the management of the ECMEPs, who are now actively encouraging the employment of women.

The integration of women into the FRP also helped to break down social barriers and gender stereotypes in rural areas. As a result, the benefits of the programme are now being more equally distributed in communities. For single female heads of households, the programme provides a rare opportunity to earn the cash that is vital for the improvement of their livelihoods.

Women can contribute significantly to development projects if they are given a fair opportunity to participate

"I have been with CEPOL since 1998. I heard on the radio that there were vacancies for work on road rehabilitation and gave my name to DEP in Mocuba. Up to now I have done the following: formation work, gravelling, collecting stones and breaking rocks. With the money that I have earned in 1998 and 1999, I have extended my house that had one bedroom and now has three and a lounge and is built with baked bricks. Then I bought a radio, a bicycle, clothing for me and my children. Next I will buy iron sheets to cover my house."

22 year old single mother, with a seven year old daughter, recruited by the contractor CEPOL, in Derre, Zambézia.



8 Building together

The success of any development programme is dependent on the will of the government to make it work. Also, programmes are only as strong as the relationships that exist between donor representatives, externally recruited technical assistance staff and the nationals with whom they work.

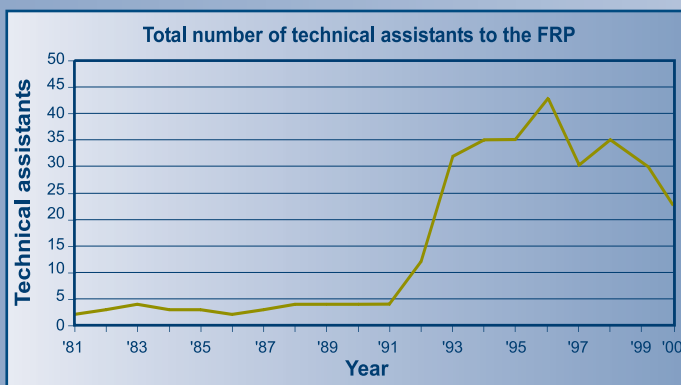
Donors that have supported the Feeder Road Programme include the United Nations Development Programme (UNDP), the United Nations Capital Development Fund (UNCDF), the World Food Programme (WFP) and the governments of Sweden, Norway, Germany, United Kingdom, Denmark, Ireland and the United States. The International Labour Organisation (ILO) has provided technical assistance throughout the implementation of the programme.

From the outset, the donors and those providing technical assistance chose to work in close partnership with the Mozambican Government. Particularly in the early stages, there were immense difficulties in dealing with a centralised and at times inefficient government service beset by a lack of managerial and technical skills. Over the years, however, the investment paid off. As the government gradually gained more skills and experience, and adopted a more open managerial style, the programme became increasingly accepted as an integral part of what later became the Directorate of Regional Roads within the National Road Administration.

Donor-funded development programmes should work closely with government partners and within government systems

FRP Technical Assistance

A technical assistance team, comprising a Core Management Unit (CMU) and technical advisors provided technical assistance to the FRP. The CMU included a Chief Technical Advisor, Regional Advisors, Training Advisors and a Mechanical/Procurement Advisor. Some technical advisors worked in the central



On-site discussion

administration's accounts department. Others advised on gender and social issues, or acted as engineering and mechanical advisers to the work brigades throughout the country. All the TA were expatriates, with some being recruited locally. Cooperantes were employed by the Government. The team was large, but was still faced with significant constraints. The monitoring of field operations was particularly difficult due to the far-flung nature of the programme.

Apart from the technical assistance provided by the ILO to the Feeder Road Programme, donors funding other projects under the umbrella of ROCS also provided significant additional technical assistance.

The level of technical assistance provided should be compatible with the ability of host country institutions to absorb it

In some cases the level of assistance provided was greater than could be absorbed and successfully coordinated within existing road sector institutions. The cost of the assistance was at times high in relation to the value of roadworks completed.

A key factor in the effectiveness of the technical assistance was the emphasis on integration into the national team and an ability to communicate well

Expatriate technical assistants must be able to communicate effectively with their local counterparts

in Portuguese. This became particularly important later in the programme, as the focus shifted from achieving high levels of production of roads to more complex long-term issues such as restructuring, decentralisation and routine road maintenance.

The management of the TA team appears at first sight to be a tall order, considering the number of people involved, and the diverse background of the TA staff and the cooperantes, and the fact that the TA team has been based throughout the country. The various TA team members have, in addition, served several organisations, with some working for ANE, others for the ECMEPs and yet others for the Road Fund. Indications are, however, that management by and large has functioned well. To a large extent this is explained by the fact that the TA has only limited management responsibilities vis-à-vis the various team members, as they in effect have been subject to a form of management control for their day-to-day activities by the organisation to which they have belonged. It is clear that some TA members have in effect filled line positions in the organisation, which they have been expected to support.

FRP Final Evaluation, 2000



Technical advisor and counterpart, Nampula

The technical assistance to the FRP was designed to focus on support to the state-owned construction brigades (ECMEPs), which were implementing the programme on the sites, whilst the DEPs benefited from technical assistance and support under the ROCS project. The support to the DEPs was phased out before the major task of strengthening the DEPs was concluded. This resulted in an imbalance of capacities between contractors and the provincial road departments, who were not always able to effectively supervise the works. The DEPs were often left as bystanders, unable to establish their authority on the sites. They are highly reliant on the ECMEPs for logistical support including vehicles, fuel, accommodation and subsistence.

In the mid-1990s the primary objective of the programme became maximising the output of completed road and the programme was rapidly expanded. Staff and resources were stretched to their

limits. At times this led to inadequate control of the quality of the work and the use of machines for tasks suitable for manual methods. However, the flexible approach adopted by the government and the donors ensured that the overall objectives were achieved, by maximising the use of available resources.

Training for construction projects should build equal capacity for both the implementation and the supervision of the works

Donor Coordination
 Coordination between the various donors involved in the road sector was at times problematic. Although the FRP was seen as a part of the Roads and Coastal Shipping Project, the ROCS activities largely existed side by side with the FRP, without

Effective coordination between donors supporting projects in the same sector can help to strengthen government policy formulation

much interaction and coordination. As a result, some of the objectives of the FRP, such as employment creation and the potential of labour-based works, were not always given sufficient emphasis in high-level government policy discussions.



Technical advisor and counterpart staff

9 Building skills

An important objective of the FRP was to train sufficient local personnel in order to reduce and eventually remove the need for expatriate experts. From the first pilot project in Zambezia Province in 1981-82, counterpart staff were trained to gradually take over the functions of the expatriates with whom they were working. It was also necessary to train a large number of local personnel to manage the huge expansion of the programme in the mid-1990s.

The operations of the FRP encouraged the career development of local counterpart staff. The combination of intensive training courses, the transfer of technology programmes and the opportunity to work in a well-managed environment was effective. Several FRP staff achieved rapid promotion within the government structures. Staff were motivated by having clear tasks to undertake and the means to achieve them. Unfortunately, sufficient numbers of Mozambican counterparts were not always available to work with the expatriate staff, particularly on the construction sites, where the practical training would have been of immense benefit.

It is important to have qualified, motivated, and well-resourced counterpart staff who can absorb the skills transferred and assume the responsibilities

Nearly 5000 person-weeks of training in labour-based technology have been provided since 1993

Chimoio Training Centre

Early training activities were based on standard ILO training manuals, translated into Portuguese. Over the years the training materials were further adapted to meet local needs. The training was carried out by expatriate staff and later by Mozambican nationals, who themselves were graduates of the training courses.

One of the most notable features of the FRP was the establishment of labour-based training programmes at the Mozambique Roads Training Centre (CFE) at Chimoio. Opened in 1993, the Centre was established to service the entire road sector, including provincial road departments and private companies. It soon became the focus of training activities of the FRP. Courses were developed for a wide range of worker grades from construction managers to foremen, supervisors, storemen and tractor mechanics. Several hundred staff of all grades have now received training at the centre. Nearly five thousand person-weeks of training have been provided in labour-based technology.

The FRP adopted a flexible approach to training. For instance, not all training courses were presented at the school. In some cases it was found to be more cost effective for the trainers to travel to district centres to deliver the courses.

A weakness in the training programme was a lack of courses in the design and construction of culverts and small bridges, particularly during the early part of the "expanded programme". This reflected the



Inspection of drainage structures





Participants on a management course



Training on site

lack of importance given to this aspect of the work in the programme policy, which focussed on output of rehabilitated road. As a result, relatively few of these structures were built. Culvert design and construction was included in FRP training courses from 1998.

Since its establishment, the training centre has benefited from support from the World Bank under the ROCS project and from UNDP and SIDA under the FRP. In the late 1990s the training centre became an autonomous institution within the Human Resource Department of the Ministry of Public Works and Housing. The training centre is now required to be financially self-supporting. This transition phase has proved to be difficult, and the training centre has survived mainly through undertaking works contracts as part of the training programmes. In hindsight it is apparent that the commercialisation of the training centre's activities was perhaps premature.

The effective privatisation of (government) institutions may require long-term support

Until private sector activity in the road sector in Mozambique has developed to much higher levels, it is unlikely that local companies will be able to afford the fully commercial rates charged by the centre. Continued support from the government and the donors is likely to be required.

The transition from fully subsidised training to full cost recovery by the centre might have been easier if participants had been required to contribute to the training costs from the outset. When the training was provided free of charge it was often regarded as a "gift", and the true value not always fully appreciated by participants. In some cases contractors sent inappropriately qualified staff on training courses simply because the courses were free.

Contractors tend to value the training more highly if they have to contribute financially



10 Building with business

Most of the work undertaken by the Feeder Road Programme was implemented by the construction brigades of the state-owned ECMEPs. For much of the programme the emphasis was on achieving high levels of production, particularly in the years following the Peace Accord. Cost efficiency of operations was generally viewed as a secondary priority.

The brigades were not required to bid competitively for work, but were paid according to fixed unit rates set by the government. In many cases these rates did not cover the full cost of completing the work, and some activities were not covered at all. Not surprisingly, there was little sense of working to a genuine contract.

Private Contractor Development
Private contractors were first introduced to the programme in the mid-1990s by IBIS, a Danish NGO operating in Zambia

20 labour-based contractors were established between 1995 and 2000

Province, and through a British Government-funded contractor development project. World Vision also trained labour-based contractors in Zambia and Namibia, with funding from the United States.

In a true contracting environment, unit rates must be calculated to cover all costs

The introduction of contractors to the FRP was seen as a development of the initial FRP model. Local entrepreneurs with suitable technical backgrounds were selected to participate in training programmes before undertaking roadworks contracts. Twenty labour-based contractors were established between 1995 and 2000, re-opening over 2,000km of feeder roads in the process.

Local labour-based contractors were also trained in routine maintenance under a national contractor development pro-



Mozambican contractors, their staff and their work



gramme, which was part of ROCS. Some of these contractors were awarded contracts for routine maintenance on feeder roads.

In 2000, the ECMEPs were required to compete with local contractors for contracts to repair flood damage to roads in the south of the country. Due to the emergency situation it was not possible to provide significant assistance to the private contractors in the bidding process, but still nearly half of the work undertaken in Maputo Province was won by the private sector. In Gaza and Inhambane provinces most of the contracts were awarded to the ECMEPs.

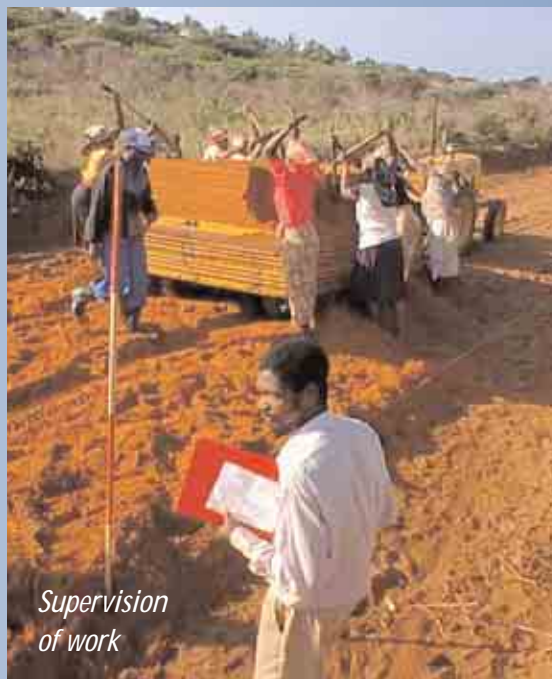
For many years the policy of the government has been to ultimately privatise all road construction and maintenance activities in Mozambique. The ECMEPs now enjoy fewer subsidies and less guaranteed work. It is hoped that this will enable private contractors to compete for work and will encourage the development of the domestic road construction industry.

It is not enough to have a policy to encourage privatisation. Concrete and carefully considered steps, such as ensuring a "level playing field" and sufficient workload are required to put it into practice

Simultaneously with this initiative, the government is encouraging the development of local consulting firms able to assist the provincial road authorities with the supervision of the contractor's activities. It is hoped that this will encourage higher standards of workmanship and accountability.

Contractor development should go hand in hand with the development of consultants for supervision of works

As the Mozambican economy recovers from the civil war, equipment suppliers have begun to re-establish



Supervision of work

agencies in provincial and district centres. Spare parts are becoming more readily available. Contractors are now able to access bank loans for the purchase of equipment, or are able to arrange credit from the equipment suppliers. These developments have contributed significantly to the growth of private contractors.

The development of the ECMEP brigades and private contractors is a significant achievement of the FRP. They represent a valuable national resource for road rehabilitation and maintenance work, which previously did not exist in the provinces. The continued growth of private contractors, and their participation in road maintenance, is essential for the sustainable development of the Mozambique road network. As they are relatively new to the Mozambican road sector, continued support will be necessary for some time to come.



Contractor's camp

11 Building for the future

The Government of Mozambique and the National Road Administration face many challenges as they seek to consolidate the success of the Feeder Road Programme, and continue to build for the future. For example, some remote rural areas are still inaccessible, and provincial road authorities still lack the capacity to adequately organise the maintenance of the roads.

Maintenance Budget

With the reopening of more of the feeder road network, it is now time for the government to decide the maximum size of road network that it can afford to maintain. Systems will be required to monitor the growth of traffic on feeder roads and to predict the economic and social development along specific roads. This information is needed for the prioritisation of further improvements to the network and should be available at the provincial level. At the same time, it will be necessary to develop methods of rehabilitation that require less maintenance, and methods of maintenance that cost less but are equally or more effective than those presently used.

The funds available for maintenance should determine the size of the road network

Decentralisation

Additional capacity is required in the provincial road departments for the management of road maintenance, the tendering of contracts and the supervision of the work. The decentralisation of these responsibilities will provide additional opportunities for local contractors and consultants. The primary objective of decentralisation should be the more efficient use of scarce road maintenance funds.

Capacity building effort must accompany decentralisation of responsibilities and powers to the provinces

The Directorate of Regional Roads (DER) in the National Road Administration will continue to have a key role in promoting the use of labour-based methods using a standardised approach. This will include developing appropriate forms of contract, designs and specifications. The DER will be responsible for coordination, monitoring and advisory services, with implementation delegated to the provincial authorities. The DER will also have an important role to play in raising awareness within the government, and within communities, of the benefits of using labour-based methods. It will be necessary to mainstream HIV awareness and prevention in all road sector activities.

DER must continue to play a key role in the promotion and standardisation of labour-based technology. However, external support for this technology in the road sector is still necessary in certain areas, but should be phased out over time

Private Sector Participation

The sustainability of the road sector will be enhanced through the development of private sector capacity. This will include the ending of all subsidies and preferences enjoyed by the government's ECMEP brigades so that private contractors can compete on a level playing field.

A level playing field should be created for ECMEPs and private contractors to compete on

Continued support for the development of local contractors, e.g. through training programmes, will be required. Many small district-based contractors, with low overheads and little need for equipment, will be required to undertake the routine maintenance of





feeder roads in remote areas. Training programmes should be provincially- or district- based and should prepare the contractors for real life situations. If on future programmes, equipment is provided to contractors, ownership and responsibility for the equipment should be vested in the contractors from day one.

Forms of contract developed centrally must be suitable for use by contractors and supervisors at provincial and district levels. The forms of contract should ensure that the government's wider objectives, such as promoting employment creation and gender equality, are achieved.

Training of labour-based contractors and consultants should prepare them for the real life situation

Construction Standards

Implementation of the "spot improvement" approach will enable access to be provided to larger areas of the country without greatly increasing maintenance requirements. Small private local contractors will play a key role in this process. More skills will be required at local levels for the construction of small bridges and culverts. The correct choice of road design must be made for the different situations that exist in the country. Technical solutions are required for the construction of roads in sandy soils in the high rainfall areas along the coast.

Appropriate engineering standards for low volume roads should be developed and adopted

Non-Classified Roads

Thus far the Feeder Road Programme has been mainly concerned with improving and maintaining roads that are part of the classified network. These roads are eligible for funding from the national Road Fund. Many communities are, however, dependent on non-classified roads for access to essential services and markets. Despite ad hoc efforts by some communities, district administrations and non-governmental organisations, there are currently no systems in place for the maintenance of non-classified roads. The World Bank Rural Travel and Transport Programme (RTTP), has made some progress in resolving these issues, but significant additional work is required to develop practical and affordable solutions. This could include, for example, adapting the FRP's labour-based approach to a more community-based approach improving access along unclassified roads through spot improvements.

Need to improve access along unclassified roads through spot improvements

Future Challenges

The Feeder Roads Programme has provided a solid foundation on which to build for a future of continued improvements to the Mozambican road network. This will benefit local communities and the wider economy. Labour-based methods have been proven to be a key factor in maximising the benefits of construction and maintenance works. Many challenges have been overcome. Many more still remain.

12 Projects and key facts

Projects	Dates	Donor Funding
Pilot Project Zambézia Province	1981-1982	NORAD
Pilot Project Maputo Province	1983-1985	SIDA
Experimental period	1986-1987	UNDP
Feeder Road construction in Gaza, Inhambane	1987-1988	UNDP
Feeder Road construction in Manica Province	1989-1996	KfW
Labour-based Road Improvement and Maintenance Systems	1989-1991	UNDP
Management Assistance to Labour-based Feeder Roads and Maintenance Rehabilitation Programme (Phase One)	1992-1996	SIDA UNDP
EU provided equipment for Sofala and Zambezia provinces	1992-1996	EU
World Food Programme	1993-1999	WFP
Nampula Province Road Rehabilitation	1994-1998	UNCDF
Zambézia Province Road Rehabilitation	1995-1999	UNCDF
Zambézia Feeder Roads Project	1995-2001	DFID
Swedish Support to the Road Sector in Mozambique	1996-2001	SIDA
Management Assistance to Labour-based Feeder Roads Rehabilitation and Maintenance Programme (Phase Two)	1997-2001	SIDA UNDP
Labour Intensive Road Rehabilitation and Maintenance in Nampula and Zambézia	1997-2001	US Aid
Rural Road Programme – Tete and Manica	2000-2005	DANIDA

Feeder Road Programme Fact Sheet

Implementing Agency	The National Road Administration (Formerly the National Directorate of Roads and Bridges)
Programme Start Date	1981
Key donors	<ul style="list-style-type: none"> – Danish International Development Agency – Department for International Development (UK) – Irish Aid – Kreditanstalt für Wiederaufbau (Germany) – Norwegian Administration for International Development – Swedish International Development Cooperation Agency – United Nations Capital Development Fund – United Nations Development Programme – United States Agency for International Development – World Food Programme
Technical Assistance	International Labour Organization
Length of road opened	6,000km
Worker – days of employment created	8 million
Person – weeks of training provided	4,800

Milestones	Dates
Start of Pilot Phase	1981
Creation of the National Directorate of Roads and Bridges (DNEP)	1987
Feeder Road construction in Gaza, Inhambane and Manica Provinces (UNDP and KfW)	1987
Launch of the "expanded phase" of the FRP	1992
Opening of the Centro de Formação de Estradas in Chimoio	1993
Creation of Feeder Road Divisions (DETs) in the ECMEPs	1994
Creation of the Gender Unit within the FRP	1996
Creation of the National Road Administration and Directorate of Regional Roads	1999
Creation of the Social Issues Unit within ANE	2000

13 Contributors and credits

Contributors

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Credits

Photographs: S. Wilson – pages 1, 4, 6, 13, 15, 16, 18, 20, 21, 23, 25, 26, 28, 29

J. de Veen – pages 5, 8, 9, 17, 24

J. Bizios – pages 5, 8, 9, 17, 18,

J. Clifton – pages 5, 6, 7, 12, 13, 14, 18, 30, 31

T. Stenström – pages 6, 11, 23

K. Anderson – pages 21, 22

J. Markland – pages 15, 17, 18, 19, 27, 29



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