PART 4:

REGIONAL DEVELOPMENT PLAN

Chapter 1 Overall Conditions of the Study Area

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1.1 Existing Conditions of the Study Area

The Study area consists of the two provinces of Niassa and Nampula. The total length of the Study road is approximately 350 km. In this chapter, overall conditions of the study area are described in order to prepare a regional development plan and to analyze economic, social and financial viability.

The Nacala Corridor, which extends to Malawi through the Nampula and Niassa Provinces of Mozambique from Nacala Port, serves as a trucking route that connects northern agricultural zones with important cities and/or towns. In the rainy season, which is from November to April, the region has a high rainfall ranging from 1,200 to 2,000 mm. As the Study road is an unpaved road, it is frequently impassable during the rainy season, affecting the transportation of crops during this period.

Looking at the 3 regions in Mozambique, results of the economic performance study conducted by UNDP over the period under analysis continue to show heavy economic concentration in the southern region of the country, with an average of about 47% of real production as can be seen in Figure 1.1.1. Within the southern region, Maputo City stands out with a contribution in real terms of about 20.8%. The central region follows, with a contribution of 32%, and finally, the northern region with only 21% of national production. In the following tables and graphs, the relevant existing Socio-Economic Indicators of the provinces in the Study Area are shown.

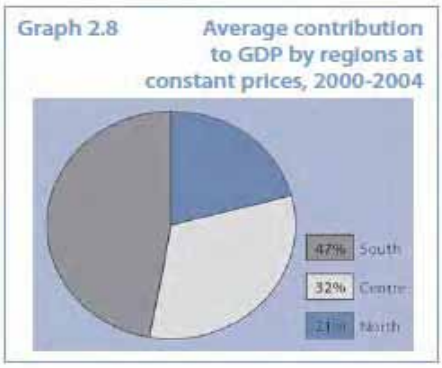


Figure 1.1.1 Average Contribution to GDP by Region

Source: Mozambique National Human Development Report 2005

Table 1.1.1 Existing Socio-Economic Indicators of the Provinces in the Study Area

General	**Nampula**	**Niassa**	**National**
Population – National Statistics Institute (INE) projection for 2004	3,563,220	966,580	19 million
Children under age 18 (2004)	1,832,340	519,330	9,613,470
% of population that live below poverty line (2003)	52.60%	52.10%	54%
Mortality			
Under five mortality rate per 1000 (2003)	220	206	178
Infant mortality rate per 1000 (2003)	164	140	124
Nutritional status			
Chronic malnutrition among children 0-5 years (stunting) (2003)	42%	47%	41%
Acute malnutrition among children 0-5 years (wasting) (2003)	6.00%	1.30%	4%
Children underweight between 0-5 years (2003)	28.20%	25.10%	23.70%
Water and Sanitation			
Access to safe drinking water (2003)	32.20%	30.20%	35.70%
Access to sanitation (2003)	26.20%	70%	44.80%
HIV/AIDS			
HIV/AIDS Prevalence among 15- 49 year olds (2004)	9.20%	11.10%	13.60%
Immunization			
Children 12-23 months fully immunized (2003)	53.90%	46.60%	63.30%
Children 12-23 months immunized against measles (2003)	69.10%	51.90%	76.70%
Education and Illiteracy			
Primary net enrolment rate (2003)	46.30%	47.30%	61%
Adult illiteracy rate (2003)	65.10%	64.40%	53.60%
Female illiteracy rate (2003)	81.40%	68%	68%
Maternity care and adolescent fertility			
Fertility Rate (2003)	6.2	7.2	5.5
Births attended by skilled health personnel (2003)	38.20%	47%	47.70%
Births in health institutions (2003)	36.80%	46%	49%
Communication			
Total % of population with radios (2003)	48.30%	43%	45.50%

Source: UNICEF Moz.

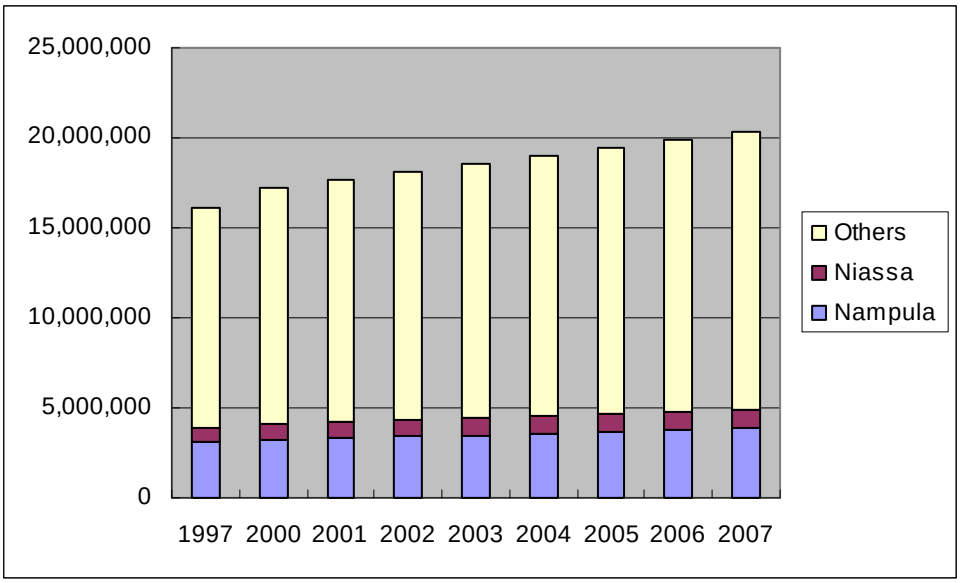


Figure 1.1.2 Population of the Region

Source: 1997 Census

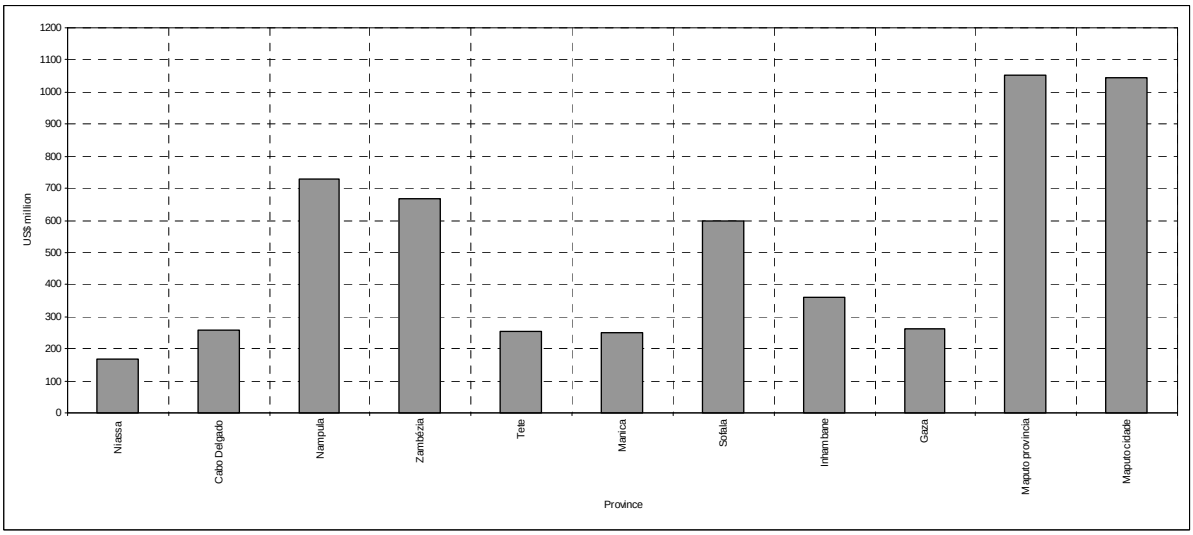


Figure 1.1.3 GDP of Mozambique by Provinces

Source: INE (National Statistics Institute)

1.1.1 Socio-Economic Conditions of Nampula Province

1) Population

The total population of Nampula Province is 3,861,347 (2007). This is 19% of the national population, as shown in Figure 1.1.2.

2) Poverty

Nampula is one of the largest provinces (81.606 Kms^2, 10% of the total surface of the country) and is the most populated province in Mozambique (3.5 million inhabitants, 22% of the total population of the country). The population density (42 inhabitants per square Km) is the second highest in the country, exceeded only by the city of Maputo. More than 42% of the population is concentrated in six coastal districts (of the 18 districts existent in the province) and 11% live in the provincial capital,, the city of Nampula. Data from the year 2004 rate Nampula in ninth place amongst the eleven provinces of Mozambique in terms of the Human Development Rate (HDR) (0.3) and the Human Poverty Rate (HPR) (52.6), Life expectancy in Nampula stands at 41.3 years, the third lowest in Mozambique.

3) Economy (GDP)

Nampula's Gross Domestic Product (GDP), which was approximately 8,211 million Meticais in 2004, is equivalent to two thirds of the GDP for the Northern region of Mozambique (including Niassa and Cabo Delgado), and approximately 13% of the GDP for Mozambique. Nampula produces approximately 18% of the agricultural commercial production in the country, 12% of commercial fishery. The province receives about 10% of all domestic tourism and 2% of all the foreign tourists coming into Mozambique. Its industrial activity is of little significance within the national context (1%). The two main sectors of the provincial economy, respectively agricultural and commerce represent, on average, 71% of the provincial GDP, while the manufacturing industry contributes, on average, only 7% of the provincial GDP.

On average, the annual growth of the GDP and the GDP per capita between 1996 and 2000, were respectively 6% and 4%. This was considered reasonable and in conformity with the national averages. However, this average annual growth is misleading because of the abnormal growth registered in 1997. In the last couple of years, the GDP has actually remained unchanged and, the GDP per capita has decreased somewhat.

Consumer Price Index of the province in comparison with the nation is shown in Figure 1.1.4.

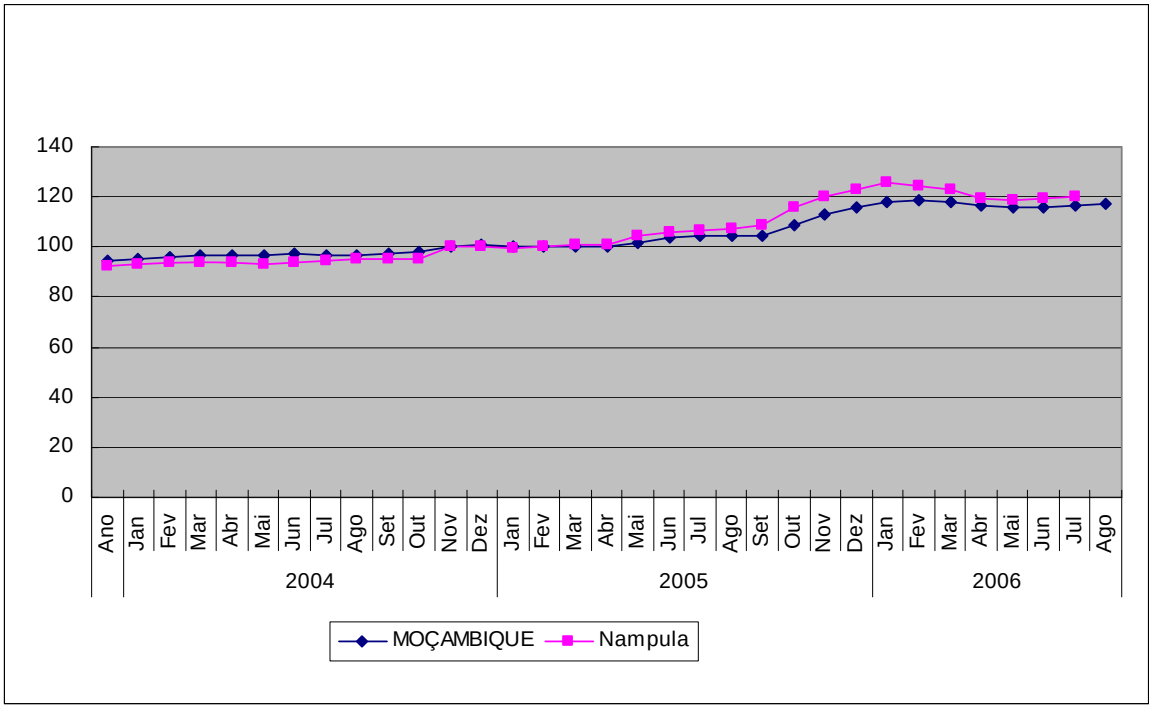


Figure 1.1.4 Consumer Price Index

Source: INE

4) Performance of Sectors

Contribution of each sector to the GDP in the province is shown in Figure 1.1.5.

Agricultural production and cattle breeding has developed positively in the last five years. However, even those activities have demonstrated inconsistent growth rate and sudden fluctuations. These fluctuations mainly occur due to the vulnerable conditions of technical and social production. For instance, there exists a high, dependency on climate conditions and vulnerability in relation to pests and diseases. The limited access to credit, means and production factors, extension services, know how and qualifications, markets and means of draining, warehousing and conservation, are common factors that dictate these major fluctuations, even though they have not obstructed growth.

General features of agricultural production in Nampula in comparison with other provinces are shown in Figure 1.1.6.

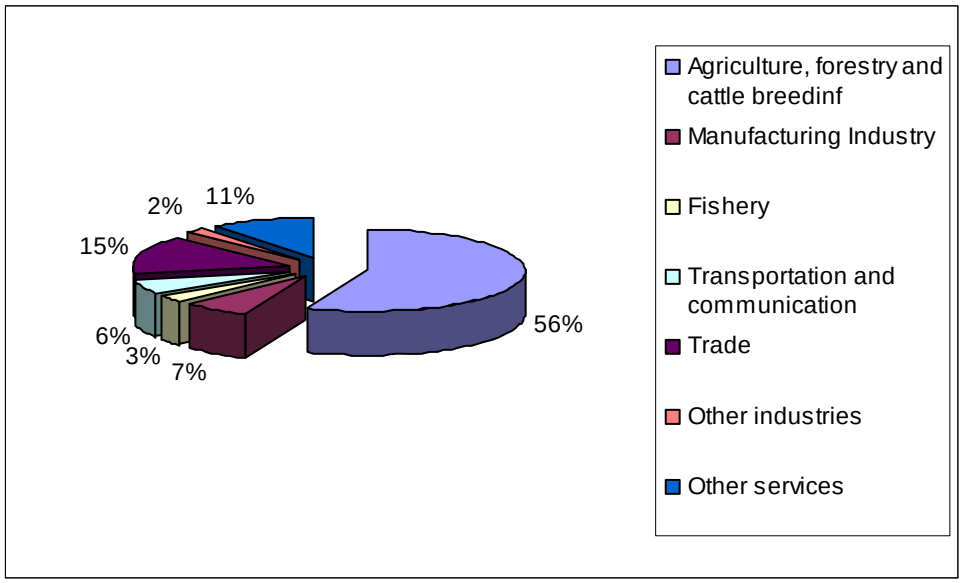


Figure 1.1.5 Share of GDP

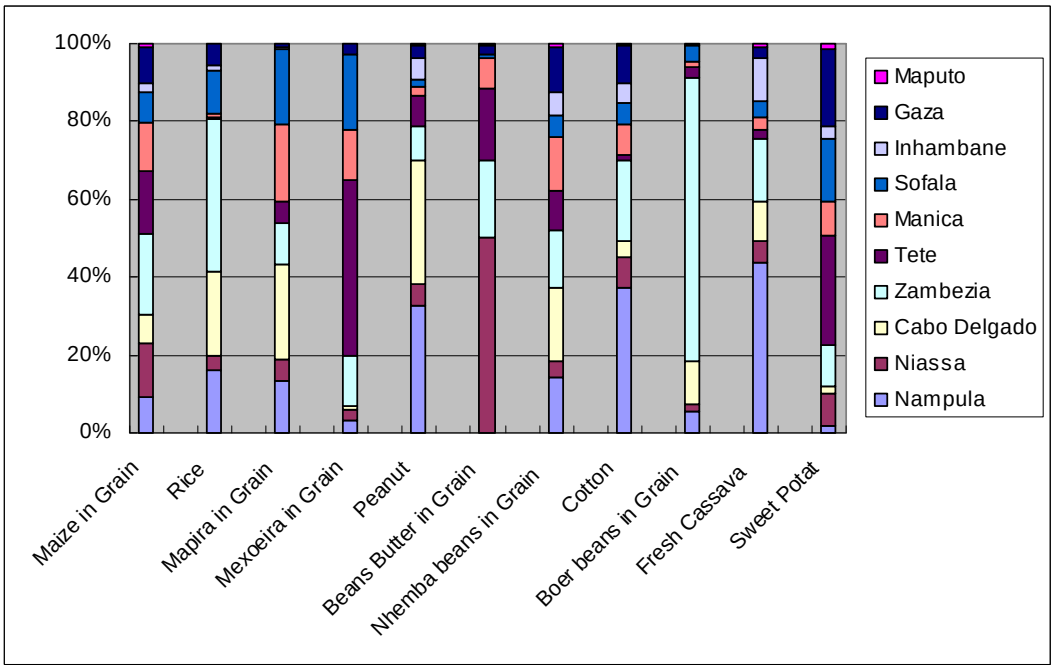


Figure 1.1.6 Agricultural Products

Source: INE

The annual average production of timber (unsown trunks) is approximately 7 thousand cubic meters, but the figures for sawn timber are much less. In the year 2001 it was equivalent to only 1.3 thousand cubic meters. Most of timber production is exported, without benefiting from any type of 'value adding' through processing.

The development of the manufacturing industry in Nampula is also reflected by large variations, especially over last five years. The major crisis in the cashew nut, textile, oil and soap industries and the periodic crisis in the cotton sector have greatly affected the performance of this sector. These industries are based on initial semi-processing of primary export products. The activities of larger processing industry connected to the domestic market depend on import; technology, qualifications, business organization and capital stock which are largely obsolete. The intra and inter industrial and sector links in the country are weak; financial resources for investment and current operations are scarce or very expensive.

Fishery has an enormous development potential, especially along the coast, in Memba, Nacala, Mossuril, Lunga, Angoche, Larde, Moma and other bays. The majority of the fishing production is for auto-consumption. The fishing production that is commercialized has significantly decreased over the past five years, especially due to the semi-industrial fishing crisis and the lack of conservation.

Trade in the province is based on a network of more than 2.5 thousand retailers and 400 bulk buyers. Of this network only 45% is located in the rural areas and 28% in the city of Nampula (11% of the total population in the province). This unequal distribution of the trading network, detrimental for the rural areas, is a reflection of the difficulties faced in order to link the regional production, trade and markets.

Tourism has a large potential. The 460kms of coast include large and pristine beaches in Angoche, Mogincual, Mossuril, Ilha de Mozambique, Nacala-Porto, Nacala-a-Velha and Memba. Most of the coast line has coral reefs, beautiful landscapes and a potential for sports fishing as well as other water sports. The interior benefits from forests, fauna and mountains. The tourism industry has not been properly developed due to the lack of infrastructure (including roads), as well as the scarceness of financial means.

1.1.2 Infrastructure (Economic)

1) Road

The road and bridge network covers an extension of more than 3.6 thousand Kms of classified roads and 2 thousand Kms of unclassified roads. Of this network, 83% is presently passable (in 1994 where only 30% of the roads were passable). There are also 340 bridges, of which 310 are built of concrete cement and 30 are steel bridges. A total of

88% of these bridges is operational.

2) Transport and Communication

The transportation system includes transport by road, rail, sea and air .The development in the transport sector, measured in traffic volumes by mode is shown in Figure 1.1.7. The port of Nacala is one of the three largest in the country. It is the starting point of the Nacala Development Corridor (920 Km of railway line within the province of Nampula), and it is an important port for SADC countries. This port offers modern cargo handling infrastructures, including a container terminal.

The communication network is developed through the existing telephone network, the radio and television networks, and the postal service system. There is also a meteorology system, which is considered very important for prior notification of cyclones and tropical depressions.

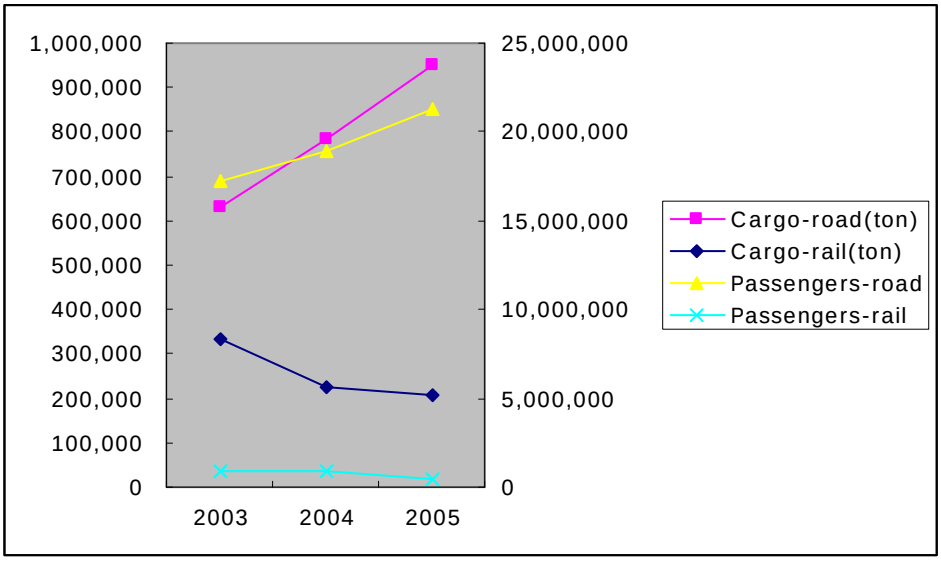


Figure 1.1.7 Traffic Volumes Flow

Source: Provincial Directorate of Transportation and Communication

3) Water Supply

The supply of drinking water covers only 32% of the population in the province. The limited access to water is due to the limited financial means for supplying infrastructure, not necessarily because of lack of potent water sources. This limited access to water affects not only human consumption but also irrigation possibilities and industrial development.

4) Electricity

With regard to electricity, only 12 districts and municipalities are connected to the

electricity supply network. There are an additional 3 diesel power stations and 7 generators with elevated operation costs, which supply electricity to some of the remaining districts. However, the majority of the administrative posts and localities do not have access to electricity. Thus, many companies situated in the rural areas have their own electricity generation, from which the neighboring population often benefits.

1.1.3 Basic Needs Facilities (Social)

Nampula is the fifth worst province in the country, in terms of incidence of absolute poverty (69% of the population) and of infant vulnerability. More than 92% of the population does not have access to electricity, 67% does not have access to radio broadcasts or potent water and 75% does not have access to health services. Nampula is the province with the third highest illiteracy rate amongst the adult population (65% in 2003), being the province with the lowest gross and net schooling rates amongst the school age population, be it in primary or secondary school. Existing conditions of the school facilities along the road corridor in the study area are shown in Table 1.1.2.

The majority of the economic active population is linked to family agricultural production and other labor activities. However, this sector generally depends on the dynamics and conditions of wage earning jobs and the more formal markets of agricultural products. As such, the creation of jobs and the promotion of commercial agricultural production are crucial to break the poverty cycle and create new forms of economic dynamism. Data regarding employment and unemployment are scarce, incomplete and represent very little of the actual situation. Between 1997 and 2001, unemployment doubled; job offers reduced to one third; the number of candidate job seekers registered increased by 25%; and the percentage that actually succeeded employment reduced from 18% to 5%. However, this data does not cover the dynamics of employment and unemployment in the rural areas, where dependency of the majority of the families on wage earning jobs is very strong.

Projections from the Ministry of Health indicate that the rate of prevalence of HIV/AIDS in the province of Nampula, amongst the age group between 14 and 49 years is 9.2%. Sample testing in the provincial health units amongst blood donors, pregnant women and voluntary testing indicate an incidence of only 5.2%. This information is, obviously, incomplete due to the poor coverage of the provincial health network and the population strata from where such data was obtained.

The epidemiologic profile of the Province indicates that malaria and diarrhea are the main

causes of morbid-mortality and that there is a trend of increase of cases and deaths in 2006, compared with the equivalent period in 2005.

Table 1.1.2 Existing Schools along the Project Road

	Schools				Students				Teachers				Class
	EP1	EP2	ESG	ETP	EP1	EP2	ESG	ETP	EP1	EP2	ESG	ETP	rooms
Nampula City	48	24	8	1	71,760	17,341	12,564	1,242	1,175	431	295	112	516
NPL/ District	105	6	1		23,833	1,150	200		2,211	230	10		454
Mecuburi	81	4	1		33,264	1,236	187		1,820	199	17		370
Ribaue	89	5	1	1	41,993	507	842	114	1,978	879	84	40	361
Malema	92	4	1		35,994	796	146		1,302	982	19		418
TOTAL	415	19	4	1	135,084	3,689	1,375	114	7,311	2,290	130	40	1,603

Note: CFPP and IMAP are not included in the table.

Source: Provincial Directorate of Transportation and Communication

1.1.4 Financial Sector

1) Government Revenue and Expenditure

In the past 5 years, the nominal total fiscal revenues have increased by more than 63% (35% in actual terms), but still depends heavily on the revenue derived from the state budget (95% of the total revenue). Total expenses are still dominated by operations (76%), of which salary expenses represent the largest proportion (61% of the operational expenses and 47% of the total expenses). Public investment budgeted and conferred to the province was still an insignificant fraction of the total public and private investment in the province (approximately 3%). This data undervalues public expenditure in order not to include expenses carried out directly by the state budget in, or in relation with, Nampula, nor the off-budget financing of public projects supported by international finance, bilateral and multilateral development agencies.

Of the public expenditure, 66% is used in the priority sectors as indicated in the Action Plan for the Reduction of Absolute Poverty (PARPA), in particular in the social sphere (education, health and access to drinking water) and roads. Thus, not only are the state resources scarce but they are also directed to sectors that, however important, are not producing new wealth at short or medium term.

2) Private Investment

Between 1990 and 2002, private investment proposals in Nampula were approved for 111 projects, creating 19,000 workplaces, and totaling 12.00 billion Meticais (equivalent to 5% of the investment approved for the entire country within the same period). Of this amount, 30% is direct foreign investment (FDI), 12% is direct local investment (LDI), and the remaining 58% represent loans from local and foreign banks, as well as public financing from multilateral agencies and non-governmental organizations (NGOs). In terms of sectors, 27% of the investment is destined for the agricultural industry, 33% for the manufacturing industry, 20% for mineral resources, 11% for the transportation sector and the remaining 9% are divided amongst fishery, tourism, construction and others. The investment distribution is highly concentrated: 10 large projects, of which 9 are dominated by foreign investment, represent 76% of the entire investment approved for Nampula between 1990 and 2002. This information not only indicates the level of investment concentration within a small group of large traditional projects, but also its dependency in relation to the dynamics associated with foreign investment. Even though FDI represents only 30% of private investment, a small group of large projects developed around FDI mobilize more than three quarters of the entire private investment.

3) Financial Sector

Apart from the Banco de Moçambique, there are another five branches of private banks established in the province (BIM, Banco Austral, Banco Standard Totta, Banco Comercial e de Investimentos and Banco do Fomento). The only existing exchange office was closed down due to illegal practices.

The number of branches has reduced by 31% since 1997, from 26 to 18. These branches are concentrated in the main cities, especially in the city of Nampula. As a result, half of the districts and municipalities of the province do not have a bank representation. BIM holds about 50% of the total number of branches from the private banking sector.
There is a large network of entities connected to micro credit, mainly financed by foreign and local non-governmental organizations, and supported by some multilateral agencies. There are also numerous public funds for the progress of development in various activity areas, namely small industry, agriculture, agricultural hydraulics, fishery, electricity and others.

In the last couple of years, credit granted for the economy of the province has averaged 8.000 billion Meticais, while the total amount of deposits varied between approximately

6.000 and 7.000 billion Meticais. Of the amounts deposited, the local currency component has decreased from 68% in 2000 to 62% in 2001.

1.1.5 Existing Socio-Economic Conditions of the Districts in the Study Area

Existing Socio-Economic Conditions of the districts in the study area are summarized in Table 1.1.3.

Table 1.1.3 Socio Economic Conditions of the Districts in the Study Area

	NAMPULA DISTRICT	RIBAUE DISTRICT	MECUBURI DISTRICT	MALEMA DISTRICT	CUAMBA DISTRICT
GENERAL	Nampula district occupies an area of 3.650 km2 with approximately 46.1 habitants population density. Total population of 168.350 habitants (year 2006). The district is divided into four administrative posts, Rapale headquarters, district capital, Anchilo, Mutivasse and Namaita- and seven localities. The government is represented by District Directions of Agriculture and Fishing, Education, Health and social woman coordination. Government coordination of activities is done through meeting with all sectors.	Ribaue district occupies an area of 6.281 km2, with population density of about 26.1 habitants per km2. The total population is 163,847 habitants. The district is divided into three administrative posts Lapala, Cunle and Ribaues headquarters, district capital and ten localities. The government is represented by Districts Directions of Agriculture and Fishing, Education, Social Woman Coordination, Public Infrastructure, Youthfulness and Sports of the Health and Culture. The coordination of the government activities is done through regular meetings of district executive councils. Traditional activity is also present and available with an important role when solving conflicts of social matters.	Mecuburi district occupies an area of 7.252 km2 with population density of about 21.2 habitants per km2. The total population is 153,529 habitants and district capital (Mecuburi headquarters) this population is estimated in 30.000 habitants. The district is divided in 4 administrative posts – Mecuburi headquarters, Namina, Muite and Milhana and ten localities. The government is represented by District Directions of Agriculture and Fishing, Education, Health and social woman coordination. Government coordination of activities is done through meeting with all sectors. Traditional authority is also present and active and plays an important role when attribute land and solving conflicts.	Malema district occupies an area of 6.122 km2, with population density of about 27,5habitants per km2. The total population is 168,350 habitants and at district capital (Malema-headquarters), this population is estimated in 39.470 habitants. The district is divided into four administrative posts Malema-headquarters,Canhunha,Mutuali and Chiulo- and eight localities. The government is represented by Districts Directions of Agriculture and Fishing, Education, Social Woman Coordination, Public Infrastructure, Youth and Sports of the Health and Culture. The coordination of the government activities is done through periodic and mensal reports are done at each district and other sectors district activities Traditional activity is also present and available with an important role when solving conflicts of social matters.	Cuamba district occupies an area of 5.121 km2, with population density of about 37.5habitants per km2. The total population is 192.092 habitants and at district capital (Cuamba-headquarters), this population is estimated in 73.128 habitants. The district is divided into three administrative posts Cuamba-headquarters,Lurio and Etatara- and ten localities. The government is represented by Districts Directions of Agriculture and Fishing, Education, Industry, Commerce and Tourism, Public Works, Planning and Finance, Culture, Youth and Sports, Labor, Mineral Resources and Energy, Social, Transport and Communication, Health and Culture. The decisions are made by the Economic Council of all the sector and the traditional authority represented by chiefs..
LAND OWNERSHIP	Nampula is a district with moderate population density. Significant conflicts to obtain available natural resources do not occur. Land access is determined by traditional authority.	Ribaue is a district with low population density, but even there are accounts of conflicts to obtain the available natural resources especially land. The area cultivated by family sector is of 38.348 hectares that correspond about 6% of total district area. Land access is determined by traditional leaders.	Mecuburi is a district with low population density and as a result there is no registration about significant conflicts to obtain the available natural resources. The area cultivated by family sector is about 51.021 hectares that correspond about 7% of total district area. Land access is normally determined by traditional leaders and state authority.	Malema is a district with moderate population density what makes the existence of surplus land. Even tough conflicts to obtain the resource exist.. The area cultivated by family sector is of 30.757 hectares that correspond about 5% of total district area. Land access is determined by traditional leaders and district administration.	Cuamba is a district with moderate population density. Significant conflicts to obtain available natural resources do not occur. Land access is determined by traditional leaders and district administration.
AGRICULTURE	Agriculture is a dominant activity and involves most local families. The main cultures produced by the commercial family sector are: maize, cassava, beans, peanut, cotton, cashew nut respectively. In the production of alimentary cultures the limiting factors are lack of seeds and habit, misfortune shortage of furnisher. There are no big external investment in agriculture and the families use natural organic methods (organic fertilizer) to increase soil fertility.	Agriculture is a dominant activity and involves most of local families. The main culture of the family and commercial sector are: cassava, maize, beans, tobacco, rice and cotton. In the production of alimentary culture the limiting factors are lack of labor, curse, insufficient instruments, bad quality soils and difficult credit access. There are no big external investments in agriculture and the families use natural organic methods (organic fertilizer) to increase soil fertility.	Agriculture is a dominant activity and involves most of local families. The main cultures of the family sector are: cassava, maize, beans, tobacco, rice, cashew nut, sunflower, sesame and cotton are the main commercialized ones. In the production of alimentary culture the limiting factors are bad quality of the seeds, lack of irrigation, curse and insufficient utensils. The use of fertilizer is not common and the families use natural organic methods (organic fertilizer) to increase soil fertility.	Agriculture is a dominant activity and involves most of local families. The main cultures of the family sector for consumption and commerce are: cassava, maize, beans, rice and peanut in importance order. Vegetable, cotton, cashew nut, and tobacco are also cultivated the last three constitute important income cultures. In the production of alimentary culture the limiting factors are bad quality of the land more than 60%, lack of irrigation 40%, fertilizers, lack of seeds and insufficient working people 20%. There are no big external investments in agriculture and the families use natural organic methods (organic fertilizer) to increase soil fertility.	Agriculture is a dominant activity and involves most local families. The main cultures produced by the family sectors are: maize, cassava, beans, rice, mapira, sunflower and horticulture. The commercial sector produces cotton, maize, beans and rice. In the production of alimentary cultures the limiting factors are lack of market, seeds, farming implement and finance. There are no big external investment in agriculture and the families use natural organic methods (organic fertilizer) to increase soil fertility.
CATTLE- RAISING	The most important domestic animals in the district for aggregate consumption are pigs, chicken, cattle and drakes. The most important limitations to expand cattle-raising activity are diseases and lack of capital to acquire more animal.	The most important domestic animals in the district for aggregate consumption are pigs, chicken, cattle and drakes with the exception of last ones are also used for commerce. The most important limitations to expand cattle-raising activity are diseases, lack of capital, lack of habit and shortage of pasture.	The most important domestic animals in the district for aggregate consumption are pigs, chicken, cattle, drake and sheep. The most important limitations to expand cattle-raising activity are diseases and lack of capital.	The most important domestic animals in the district for aggregate consumption are pigs, chicken, cattle, drake and sheep. The most important limitations to expand cattle-raising activity are diseases and lack of capital (70%), lack of land to pasture, extension and services (10%) .	The most important domestic animals in the district for aggregate consumption are pigs, chicken, goat, duck and sheep. The most important limitations to expand cattle-raising activity are diseases and lack of chemicals, finance, disease of animals and land for rising.

Table 1.1.3 Socio Economic Conditions of the Districts in the Study Area

	NAMPULA DISTRICT	RIBAUE DISTRICT	MECUBURI DISTRICT	MALEMA DISTRICT	CUAMBA DISTRICT
HUNTING, FISHING AND WILD	Fishing and hunting constitute an important supplementary source of alimentation for families of the district. There are wild animals in the district.	Fishing and hunting constitute an important supplementary source of alimentation for families of the district and also for potential tourism. The existing wild species in the district are lions, Leopold, gazelle, and scrub chicken.	Fishing and hunting constitute an important supplementary source of alimentation for families of the district. According to districts authority it can be explored for tourism. The existing wild species in the district are lions, leopard, gazelle, zebra, elephant, and scrub chicken.	Fishing and hunting constitute an important supplementary source of alimentation for families of the district and also for potential tourism. The existing wild species in the district are lions, Leopold, gazelle, and rabbit.	Fishing and hunting constitute an important supplementary source of alimentation for families of the district. There are wild animals, such as wild pig, gazelle, changos, monkey in the district.
TREES AND FOREST CULTURES	Most common fruit trees are papaya tree, citrines and bananas. Besides this other native species that are also important like chanfuta, umbila, black wood, jambire, and rose wood. The main limitations of planting trees are lack of seeds, droughts, low soil quality and lack of finances. On the other side besides providing local material for construction the trees provide fire wood and raw material for charcoal. Deforest problems exist.	Most common fruit trees are papaya tree, orange tree, mango tree and cashew. The main limitations are lack of habit and seedling, droughts, low soil quality and lack of interest and irrigation system. On the other side besides providing local material for construction the trees provide fire wood and raw material for charcoal. Deforest problems exist.	Most common fruit trees are guava tree, citrines, papaya tree, mango tree and bananas. The fruits are used fresh, processed and commercialized locally or in Nampula. The wooding precious native trees such as black wood are very important for the district families and a left out when opening new fields.	Most common district fruit tree, mango tree, banana, lemon, orange, papaya, pears, avocado which the fruit is consumed and commercialized fresh. The main limitations are lack of interest (60%), lack of seedling, lack of habit and low quality of the soils. On the other side besides providing local material for construction the trees provide fire wood and raw material for charcoal. Deforest problems exist.	Most common fruit trees are mango, papaya, guava, banana, citrines and bananas trees are lack of seeds, droughts. The main limitations of planting, low soil quality and lack of finances, labor, seeds, land, disease. On the other side besides providing local material for construction the trees provide fire wood and raw material for charcoal. Deforest and soil erosion problems exist.
DRINKING WATER	Drinking water access is a need that still not completely satisfied and most villages have no access of well to supply water.	Drinking water access is a need that still not completely satisfied and most villages have no access of well to supply water. The communities supply water from rivers, holes and wells.	Water sector has serious problems and communities supply water from rivers, wells and holes.	Drinking water access is a need that still not completely satisfied and most villages have no access of well to supply water. The communities supply water from rivers, holes and wells. There erosion soil problems in some areas. Water is still a difficult resource. Communities use water from rivers.	Drinking water access is a need that still not completely satisfied and most villages have no access of well to supply water.
COMMERCIAL SECTOR	The district maintains commercial connections with the district province capital and other district around. The major limitation is the incapacity to produce surplus quantities. Credit formal and informal systems exist. Nampula is accessible by road, sea, air and railway and in terms of telecommunication by telephone and connections via radio.	The district is integrated in commercial province network. The market for most common transactions is based on agriculture products and is done locally. The common limitations are incapacity to produce surplus quantities, low prices of the producer, lack of buyers and market distance. Formal credit systems do not exist. Ribaue is accessible by road and railway and in terms of telecommunications by telephone and connections via radio.	The district has various extensive commercial connections because of approximate commercial axle and capital province. As a result the commercial activity is enthusiastic and the market for local products is expanded further the district till other districts and close cities. The main limitations low prices of the producer, the incapacity to produce surplus and the lack consumption goods to buy and small number of buyers. There are no formal credit systems implanted. Mecuburi is accessible by road, railway and in terms of communication by telephone and radio.	The production of surplus agriculture is creating some connections with other markets and r There some traders operating in the district coming from Nampula, Beira and Malawi. Even tough limitations still continues the incapacity to produce surplus quantities. There are no formal credit systems implanted. Malema is accessible by road, railway and in terms of communication by telephone and radio.	The district is the biggest rural centers in the Study Area (except Nampula city). There is trade with Nampula city with railway and road connection, however, the most of the products are sold to local people and neighboring districts. There are many commercial facilities to sell agricultural products, cattle, daily necessities, etc. The major limitation is low productivity and quality, low price, and small market. There are financial service facilities.
SOCIAL SECTOR	In terms of infrastructure the district has 3 health centers with fixed vaccination posts, 11 health posts, 2 secondary schools, 4 second grade primary schools, 73 first grade primary schools.	In terms of infrastructure the district has 1 rural hospital, 1 health centers with fixed vaccination posts, 5 health posts, 1 secondary school, 1 technical school, 1 second grade primary schools and 67 first grade primary schools. The district is not yet declared free from mines what makes a negative impact of economic activities and free circulation of people especially in agriculture and collection of wood.	In terms of infrastructure the district has 5 health centers, 4 health posts, 3 second grade primary schools and 65 first grade primary schools at ten localities. The district is not yet declared free from mines and continues to interfere the economic social activity especially agriculture, hunting and free circulation of goods and people.	In terms of infrastructure the district has 4 health centers, 5 health posts, 1 secondary school, 4 second grade primary schools and more than 65 first grade primary schools at 7 localities. The district is not yet declared free from mines.	In terms of infrastructure the district has 1 rural hospital, 1 health center and 10 health posts, 1 secondary school, 4 second grade primary schools, 69 first grade primary schools.

Source: JICA study team

1.2 Voices for Road Improvement and Regional Development

The people's opinions for improvement of the road and regional development were gathered by the Study Team through interviews with individuals in various fields including central and local government agencies, private companies, donor officials, NGOs, people in the villages, etc. Results of each interview are presented in Appendix-A4-1.

1.3 Interview Surveys of Residents along the Nacala Corridor

The interview survey, using a questionnaire, was conducted with the following purposes:

1) To grasp the socio-economic situations of the region such as family members, employment, level of income and source, household assets, etc.,
2) Accessibility to market, schools, health facilities and water points,
3) Need for public services
4) Shopping demands
5) Price of basic consumer goods (in dry and rainy seasons)
6) Benefits and impacts of the Nampula-Nacala road improvements

The number of questionnaires carried out was 50 in Nampula-Cuamba, and 50 in Nampula-Nacala. Question 6) applied only to the interviews in Nampula-Nacala. The site survey was carried out from 7 November to 24 November by the local NGO (Olipa-Odes). The results of the interview survey were analyzed and compiled by the NGO in the middle of December 2006. The first report from the Olipa-Odes was received on the questionnaires 3) and 4), as shown in Table 1.3.1 and 1.3.2.

Table 1.3.1 Needs for Public Investment and Services

Total Priority (both section)			Nampula–Cuamba		Nampula–Nacala	
100 questionnaires			50 questionnaires		50 questionnaires	
Priority	Points	Sector	Points	Sector	Points	Sector
1	68	Road(national road)	40	Road(national road)	37	Helath facility(facility)
2	60	Health facility(falility)	28	ransporation(public bus)	28	Road(national and village roads)
3	46	Transportation(Public bus)	23	Health facility (location and facility)	22	Schools(location and facility)
4	41	school(location and facility)	19	school(location and facility)	21	Water supply(location)
5	32	Water supply(location)	11	Market(facility)	18	Transporatation(Public bus and provate pick–up)
6	21	Market(facilities)	11	Water supply(facility and location)	11	Market(Location and facility)
7	20	Micro finance(location and condition)	9	Micro finance(location)	9	Micro finance(condition)
8	10	Electricity(house connection)	8	Electricity(house connection)	2	Electricity(house connection)
9	1	Wastewater management	1	Wastewater management	1	Solidwaste management
9	1	1 Solidwaste management				
11	0	0 Telephone				

Source: JICA survey through interviews with the residents along the Nacala Corridor

Table 1.3.2 Shopping Demands

Priority in both section: 100 questionnaires				
Section	%	Item	%	Item
Household equipments	50	Furniture	45	Cooking tools
Electric products	60	TV	24	Radio
Agriculture	54	Livestock	26	Farming tools
House building	62	Rehabilitation of main house	35	Expansion
Transport means	57	Motorcycle	31	Bicycle

Source: JICA survey through interviews with the residents along the Nacala Corridor

The need for roads and transportation is very high along the Nampula-Cuamba road. Residents along the road Nampula-Nacala prioritize the health sector. The demand to purchase TVs and motorcycles seems to be very high, despite the fact that there is no electricity supply to the houses and that the fuel for running motorcycles is very expensive.

Chapter 2 Current Regional Development Plans & Activities

Chapter 2 Current Regional Development Plans and Activities

2.1 National and Regional Development Plans and Activities

2.1.1 National Development Plan

The GOM issued the Government Program 2006 - 2009 as the 2nd National Development Plan. The PARPA is the action plan for the implementation of the Government Program. The GOM has also outlined long term strategies and policies for national development, which is guided by the Millennium Development Goals, NEPAD and SADC.

1) PARPA II

The GOM, in order to provide continuity to its strategy to combat absolute poverty, issued an Action Plan for the Reduction of Absolute Poverty – PARPA II 2006 – 2009, which is basically a continuation of the previous program (PARPA I 2001-2005). PARPA II explains the strategic vision for reducing poverty, the main objectives, and the key actions to be pursued. All of which guide the preparation of the government's mid-term and annual budgets, programs and projects. The PARPA is also Mozambique's Poverty Reduction Strategic Paper.

2) MDG

The Millennium Development Goals were adopted in the beginning of the century by all the world's Governments as a blueprint for building a better world in the 21st century. MDGs represent a global partnership that has grown from the commitments and targets established at the world summits of the 1990s. Responding to the world's main development challenges and to the calls of civil society, the MDGs promote poverty reduction, education, maternal health, gender equality, and aims at combating child mortality, AIDS and other diseases. Set for the year 2015, the MDGs are an agreed set of goals that can be achieved if all actors work together and do their part. Poor countries have pledges to govern better, and invest in their people through health care and education. Rich countries have pledged to support them, through aid, debt relief, and fair trade relations.

3) NEPAD

The New Partnership for Africa's Development is a vision and a global framework for Africa's renewal. NEPAD is designated to address the current challenges facing the African continent. Issues such as the escalating poverty levels, underdevelopment and the continued marginalization of Africa needed a new radical intervention, spearheaded by

African leaders, to develop a new vision that would guarantee Africa's renewal. The primary objectives are;

- To eradicate poverty
- To place African countries, both individually and collectively, on a path of sustainable growth and development,
- To halt the marginalization of Africa in the globalization process and enhance its full and beneficial integration into the global economy,
- To accelerate the empowerment of women

4) SADC

The Southern African Development Community (SADC) has been in existence since 1980, with the main aim of coordinating development projects in order to lessen economic dependence on the then by apartheid ruled South Africa. It was formed as a loose alliance of 9 majority-ruled states in Southern Africa (SADCC). The transformation of the organization from a Coordination Conference into a Development Community (SADC) took place on 17 August, 1992. The Member States are Angola, Botswana, the Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe.

The SADC's common agenda includes:

- The promotion of sustainable and equitable economic growth and socio-economic development that will ensure poverty alleviation with the ultimate objective of its eradication
- The promotion of common political values, systems and other shared values which are transmitted through institutions which are democratic, legitimate and effective, and
- The consolidation and maintenance of democracy, peace and security.

In order to provide strategic direction to the organization and to operate the SADC Common Agenda, a Regional Indicative Strategic Development Plan (RISDP) is in place. The RISDP is a 15-year plan being implemented in phases of five years each. The plan is now in the 2nd five year stage, RISDP 2006-2010. The African Union's NEPAD Program is embraced as a credible and relevant continental framework, and RISDP is a vehicle for achieving the ideas contained therein. SADC National Committees have been established in each Member State and their main function is to provide inputs at the national level in the formulation of regional policies, strategies, the SADC Program of Action as well as to coordinate and oversee the implementation of these programs at the national level.

2.1.2 Provincial Development Plans

In May 2002, the Provincial Government of Nampula launched a process for the 'Strategic Plan for Development of Nampula Province' for the period 2003 - 2007 (PEP 2003-2007, or simply called PEP). The main objective of the plan is the reduction of poverty through the increase of the production in a sustainable basis and through the improvement of equity and equality in the distribution of wealth. In brief, the objective of the plan is to bring well-being and social justice closer to all citizens of Nampula.

The development strategy of the plan was formulated based on the "pull factors" of the "Nacala Corridor Development" and the so-called Mega-Projects at that time. The three alternative growth scenarios were prepared as follows;

Table 2.1.1. Development Scenario of the Nampula Province

		Real GDP annual growth rate	Populatio annual growth rate	Employment annual growth rate	Estimate investment required (1,000 buillion MTs)
Scenario-1:	Less favorable	7%	2.2%	1 – 2 %	Less than 2 %
Scenario-2:	Optimistic	12%	2.2%	4 – 5 %	2.5
Scenario-3:	Most favorable	15%	2.2%	5 – 6 %	3.0

Source: Provincial Strategic Development Plan

The major strategic axes in the plan are:

1) Economic growth through the strengthening of the business, private and public sectors and associated sectors.
2) Human and social capital development
3) Infrastructure provision
4) Institutional development
5) Guarantee the sustainable use of resources

Based on the above strategies, the major priority projects are proposed as follows:

1) Development of the Nacala Corridor: Rehabilitation of the Monapo and Namialo train stations, and transformation of the Nacala Air Base into an International Airport
2) Mineral Resources: Extraction of Moma heavy sands.
3) Tourism: Lumba (Lumga) Tourist Village, tourist complex, relaxation centers, and

Nacala beaches, creation of database, promotion of tourism, creation of hotel and tourism training center, etc.

4) Fisheries: PPABAS and PPANNCD projects
5) Energy: Construction of Nampula-Moma high-voltage line, continuation of the rehabilitation and extension of the low- and medium- voltage network in the cities of Nacala and Nampula, construction of a new high-voltage line between Nampula and Nacala, extension of the network to Malema and Mutuali, and extension of the HCB grid to Moma, Nacaroa, Muecate, and Mecuburi.
6) Transport and Communications: Rehabilitation of the Nacala-a-Velha pier, rehabilitation of 60 rail wagons, rehabilitation of the postal stations, replacement and expansion of the meteorological network.
7) Public Works and Housing: Construction and rehabilitation of the water supply systems, rehabilitation of tertiary roads and low cost sanitation
8) Education and Culture: Rehabilitation of the Mutuali General Secondary School, procurement of school desks, construction of 1000 classrooms, 35 laboratories, rehabilitation of the secondary schools of Nacala Port and Angoche, rehabilitation of 10 primary schools, construction of dormitories in Moma, Malema, Namapa and the city of Nampula, construction of secondary schools in Ribaue and the city of Nampula, construction of 30 rural primary schools, acquisition of 10,000 school desks, construction of provincial library, construction and rehabilitation of district libraries,
9) Health: Transformation of the Moma Health Center into a Rural Hospital, and construction of new facilities at the Nacala-Port General Hospital, construction of new health posts, Reduce the transmission of the HIV/AIDS virus, advocacy, GATV, impact reduction, etc.
10) Women and Social welfare: Construction of a regional Training Center for social workers, awareness-raising on the prevention and combating of HIV/AIDS and drugs, creation of the reception center for the victims of violence, TOT in gender and HIV/AIDS, Creation of the psycho-social rehabilitation center in Anchillo, income generation activities for the blind, etc.
11) Labour: Vocational training, special integrated project (friendship-fair between the districts in the coast and inland), creation of a database, training in management of small business.
12) Justice: Training of thirty computer technicians
13) Youth and Sport: Construction of an athletic track, reduce the prevalence of HIV/AIDS amongst young people.
14) Agriculture and Rural Development: Identification of varieties of cassava resistant to the yellowing and root diseases, prospecting of the tsetse fly, promotion the

establishment of community pharmacies and private veterinary practices, train producers in fish farming, promote technologies of low-cost agro-processing, project reforestation with seedling, mushroom production and processing, production of honey, production of low-cost wood processing techniques, promote multimedia programs addressing various issues with the cashew plant.

15) Commerce: Updating the register of the industrial and commercial network, rehabilitation and reopening of rural shops, rehabilitation of access routes to markets.
16) Natural and Cultural Conservations; Coastal and marine biodiversity, research, etc.
17) Roads: Rehabilitation of Nametil-Moma, Nametil-Angoche, Mecupe-Muatua, Namina-Mucuberi-Imala, Alua-Cruz, Imala-Nantupe, Chalaua-Metil, Murrola-Larde, Rio Ligonha, Namaponda-Corrane, Muzula-Lurio, Natia-Nacala-a-Velha, Ribaue-Namitoro, Corrane-Mecua, Iapala-Rio Ligonha, Nampula-Liupo, Liupo-Mogincual, Rapale-Mecuburi, Boila-Moma, Muhula-Lurio, Illha de Mozambique bridge, Nampula-Angoche, Monapo-Moma, Imala-Nantupe, in Muite, in Mogovolas, in Namaponda, Namina-Imala.
18) Water Supply: rehabilitation of water sources; 50 in Angoche, 35 in Moma, 47 in Illha de Mozambique, 35 in Mossuril, 40 in Meconta, 18 in Nacala Velha, 30 in Nacala Port, 45 in Erati, 40 in Nampula, 22 in Ribaue, 30 in Mogincual, and construction of mechanical boreholes; 40 in Meconta, 30 in Mecuburi, 25 in Nacala Velha, 30 in Ribaue, 30 in nampula, 30 in Muecate, 30 in Mossuril, 23 in Lalaus, 20 in Angoche, 15 in Illha de Mozabique, 20 in Malema, 25 in Mogovolas, 19 in Moma, 20 in Monapo, 17 in Mogincual, and urban sanitation in Nampula, Nacala and Angoche.
19) Environment: Combat soil erosion, management of solid waste, natural conservation, etc.
20) Public Administration: Capacity development, acquisition of communication radios and 48 motorcycles for the administration post, and 100 bicycles.

The information of the provincial development plan of Niassa Provincial is not available because the plan is reviewing at the moment.

2.1.3 District Development Plans

The local government issued a District Development Plan for each district in the country. The following are the summaries of the development plans of the districts along the road between Nampula and Cuamba.

1) Nampula District

The District Development Plan is titled "Sustainable development of the district of Nampula on the basis of the increasing social rendering of services ". It provides a balanced and sustainable view to integrated development, needed to satisfy the needs of the residents. The strategy of development for the period during the years 2005 - 2009 consists of the following pillars:

Pillar 1: Creation of a combined and systemized relationship between the District and the neighboring city of Nampula.

1) To emphasize the main feature of the District of Nampula as a major food production area (livestock farming, vegetable growing, etc…) and tourist industry. The District is composed of the City of Nampula and surrounding arable lands in the expansion zones (Anchilo, Momola amongst others)

Pillar 2: Establishment of linkages among the associations of peasants, private sector and NGOs, for increment of the agricultural production

1) Utilize the agricultural potential and existing hydraulic resources to develop a diversified agricultural sector comprising of the family farmers and the small scale commercial producers. Creating an association of the agricultural producers to create an enabling environment for commercial agricultural production.

2) To strengthen the community initiatives in the private sector for a systematic use of the natural resources and for the introduction of attractive investment to support the infrastructure sector for the sake of ensuring profit in the farming activities.

3) To review the productive sector or services in parallel with the qualification of the producers for better resolution to the demands from the residents

4) To diversify the resources to be collected from the local markets that contribute to the increment of financial capital to support the capacity of local investment required for the development process.

Pillar 3: Development of human capacity to utilize it to maximum advantage.

1) To link any development process to qualified human resources, so that the citizens enjoy a minimum of welfare conditions and are motivated to maintain sustainable intentions to development.

2) To proceed further with reforms in the public administration sector. Priority to be given to better qualification of the human resources aiming at the supply of the material and financial resources required for the improvement of the quality for the services to the

citizen.

3) In the education sector, priority to be given to an expansion of the services for the communities as well as reduction of the current levels of illiteracy. More attention to be given to the improvement of the quality of education and constant upgrading of the teachers for the optimization of the system of education.

4) In the health sector, an emphasis is to be given to the improvement of the primary health care, combat against epidemics, improvement of the sanitary network, development of human resources, and improvement of the quality of services to be provided to the citizens.

5) In aspects of the participation of local people, great concern is dedicated to enabling citizens, including women and young people, to become more involved in the creative and permanent reform of the public administration in oredr5 to promote correct decision making.

2) Ribaue District

A summary of the five year development plan for 2000 – 2004 in the Ribaue District is tabulated below.

Table 2.1.2. Current Development Plan of the Ribaue District

Scenario 1- Base case	Scenario2-Consolidated case	Scenario 3-Resultant/Consequent case from previous Scenarios
-Reform of access way with priority on EN104	1.Increase of traffic volume in the road between Alta Zambezia and Ipala	-Increase of traffic volume in road and railway -Increase of volume of production and trading goods
-Reform of infrastructure (economic and social) in Lapala village	2.Employment opportunity increase 3.More attractiveness to investors	-Increase of income of the families -Increase of the number of people with a living income
-Improvement of water supply in the agricultural communities of the villages of Ribáué, Iapala, Namiconha	1.Health condition to be improved in communities	-Improvement of the local administration -Better health conditions
-Improve the access of people to primary education	1.Enlargement of school area of Primary and Middle School 2.Open the centers of information on automobile related job and school of arts and trade	-More schooling population -Improvement of intervention capacity in community area -Increase of professional numbers of working people
-Improvements to support the sanitary sector and to enlarge the sanitary network to remove hidden places	1.Construciton of health centers type III to type I in administrative regions	-Reduction of baby mortality ratio
-To widen the information network and ensure access of people to the information technology at lower cost	1.Increase of the quality and volume of production 2.Introduction of commercial production 3.Credit and rural financing 4.Cooperation among peasants 5.Cattle feed promotion	-Increase of the income of the families -Improvement of the agricultural income -Increase of the quality and volume of production -Increase of cattle feeding

3) Mecuburi District

The information of the district development plan is not available because the plan is reviewing at the moment by the district government.

4) Malema District

The District Development Plan was issued in December 2000. A summary of the plan is as follows:

For the development of the district of Malema, the analysis of the external and internal environmental conditions is indispensable. It may contribute to the determination of the goals, decision on the priorities and formularization of feasible alternatives. This analysis leads to the definition of general and specific objectives and forecast of subsequent activities with a view to attaining the optimum and maximum results of the goals.

The vision results from the fulfillment of the methodology for elaboration of the District Development Plan and requires a regular process of consultations at the level of the communities of the District, in the aspect of the economy and administration. The Development Strategy in Malema District aims at making an effort to contribute to improve a lamentable situation of poverty where it really exists.

Currently, the District Plan of Development is a direction for the vision of the balanced and sustainable development in basic aspects for the satisfaction to the needs of the district people.

The subject of the plan is to develop Malema district through the improvement of capacity building of human beings and accessibility to substantial resources. In order to solve various problems in the district, the formation of human resources was identified as an essential key at the initial stage. The principle concepts of the district development are:

- Formal education that ensures a widening of the school network ratio and improvement of the conditions for education and learning;
- Non formal education that lowers the levels of poor literacy, and increases education for the health, environment and other aspects for transfer of knowledge

The Strategies of Development in Malema region resulting from the final analysis for reaching the main objectives are:

- To establish an equal opportunity of participation of the people in the different regions
- To gradually raise the cultural level of the populations
- To reactivate the economy of the district, particularly in the agricultural sector
- To improve the provision of the social services in the District

- To improve an optimum technology for agricultural services and infrastructures
- To provide a better management of the natural resources and agrarian constraints
- To reactivate the collection of various types of taxes to be implemented for the resources of the state administration
- To guarantee the food supply security and availability of products for the daily use
- To enable the communities' active participation in the tasks that promote the regional development

In conclusion, it is of great importance that the local residents, who have been involved in the development process from the initial stages, become the first beneficiaries. Such involvement allows a continuous evaluation of the resources so that they can be used effectively for the development of the district

5) Cuamba District

The District Development Plan was prepared in June 2005. A summary of the plan is as follows:

In recent years Cuamba district has become one of the leading partners in the economic growth of the region. This is emphasized in the following aspects:

- Infrastructure improvement for economic growth
- Improvement of the administration services
- Implementation of participation in governing the communities
- Better qualification of public officers as traditional leaders
- Growth of the investment levels

In addition to the above, the district has created conditions for gradual improvement of welfare in the area. This is reflected in an improvement of the quality and value of the provision of basic services in education, health and water supply as well as the replacement of the district economic agencies with commercial entities.

The impact of these measures is seen as a necessary supplement to other measures of direct impact in the evolution of productive activities, in particular, in the private sector. It thus contributes for the working population to stimulate other sectors and to create new values which allow the district to implement further steps for the reduction of the absolute poverty level.

1) Objectives of Program

The objectives of district development contained in the present plan are conformed to the

general objectives of the Program of the Government, Strategically plan of Niassa 2005 and the PARPA. They accelerate the growth of the district, looking forward to internally reducing symmetries of the development of the district. Specific objectives of the different sectors and areas of the district consist of the matrix in the sector activities as well as the priorities given as below:

2) Process of Planning

The present development plan was elaborated using the district development plan, which was submitted to the Ministries of the State Administration, Planning and Finances and Agriculture , as a basis. The elaboration process followed a series of steps for preparation of the development plan, followed in turn , by an authentication procedure. Effective diagnosis of the district's problems for elaboration of the particular profiles, assisted by the importance of economic partners, synthesis of problems and potentialities, subject to permanent participation of the local communities.

During the various phases of drawing the strategy of the development and sector program, continuous discussions took place among the provincial entities, the local administrations, the Government and various civil societies. Through these steps, the District Government has reviewed the district plans for the regional development.

2.1.4 Structure Plan of the Nampula City

The structure plan of the Nampula City 2000-2005 was formulated in 1999. The plan is valid until the new plan to be issued. In the plan, the future population of the city was forecasted as 460,000 in 2010 and 620,000 in 2020. Based on the forecast, the alternative options of the land use patterns were elaborated, and selected the option 3, which intends urban expansion in northward, as recommended one.

According to the interviews to the officials in the city counsel, the major development issues of the city of Nampula are in the fields of water supply, solid waste and wastewater management, and housing development, among other things.

3) Water Supply

The water sources of the city is the dam in the Rio Monapo located in 10 km north of the city, and carry by the water pipe to the water tanks of the city. The rehabilitation of the dam was completed and increased capacity from 10,000 m3 to 20,000 m3, which is enough for the water demand at present. However, the water pipe system is very old and damaged in many parts. The rehabilitation of the water pipe is urgent.

4) Solid-waste Management

The issues on solid waste management area represented; one is no appropriate final deposit site, two is luck of garbage collection vehicles, and three is less consciousness of the people on sanitary environment. The solid waste collected in the intermediate deposits of the city is transport by tractors to the 5 open dump sites in the periphery of the city. The feasibility study was made, and proposed to the city council for the approval, however, it is not yet decided. The city collects the charge of the collection of solid waste, 10 MTn/month as a part of electricity charge for each household.

5) Wastewater Management

The sewerage system is also very old, and the Nampula stands far from the sea, this sector has big problem. The rehabilitation of the system is under going, but very limited budget. The city's vacuum car is broken. The private cars are working for this purpose.

6) Housing Development

The supply of housing is not much to the rapidly increasing housing demand in the city. The several housing estates/subdivisions is going to prepared by the city, as well as by the private sector, however, the cost of housing supply tends to exceed than the selling price of the housing. The supply of the public and low-cost housing is not in good progress.

2.1.5 Major On-going Projects and Development Activities

1) AfDB

1) ASNANI Water Supply Project in Nampula and Niassa provinces: Water supply and sanitation - large systems, 8/2001 - 6/2007 (DNA: Water Supply Agency) US $ 27.000.000 (financed by AfDB)

The rural water supply is one of the priority projects. The current situation of water supply in Nampula is very critical, with only 22% (690,000), of the population having access to potable water, which is proved the number of population has access to the potable water. However, according to the ASNANI Assessment Report of the Baseline Study in Erati District in Nampula province, the total number of water supply points is 60, whilst only 31 of those are operational. Amongst the total population (358,078) of Erati district, only 4.3% have access to potable water (assuming an average use of 500 people per water supply point) Only 2.7% of the district population have access to potable water within a distance of 500m.

The project aims to open up 50 to 60 water supply points to increase the coverage of people in the rural area who have access to potable water. This project also includes a small scale piped water system in the cities/towns of Lichinga, Cuamba, Angoche, etc. Besides the ASNANI Project, other small projects are on-going in the region.

- MCC (Millennium Challenge Corporation) Feasibility Study of Water Supply System in Nacala City
- ROVUMA Project (Joint project by Government of Tanzanian and Mozambique), financed by AfDB through SADAC fund. The main purpose of this project is capacity building to expand the rural water supply system in the northern region.
- HAUPA Project (CARE International)
- AFRODRILL (Indian Organization)
- ESSOR (French Organization)

2) Rural Electrification Project-III: Electrical transmission/ distribution, 9/2001 - 12/2007 (EDM:Mozambique Electricity Company) US $ 28.014.493

The project covers the 5 districts of Murrupula, Muecate, Nacaroa, Moma and Mecuburi which have no access to the HCB network. The project involves (a) construction of 895.5km overhead line (33 kV); (b) erection of 76 of 33/0.4 kV pole mounted transformer stations; (c) construction of 72 km of 0.4/0.22 kV overhead lines; (d) installation of 1.700 street lighting points; and (e) connection of 7,053 consumers including households, small industries and businesses, irrigated agriculture and service facilities. By the end of 2008, the project aims to connect all districts in Nampula province to the HCB Electricity Network.

3) Education IV Project: Education facilities and training, 1/2002 - 12/2008 (Directorate of Construction and Equipment of Schools, Ministry of Education and Culture) US $ 27.811.594

The project covers the provinces of Nampula, Niassa, Cabo Delgado, Zambezia and Maputo. The objective of the project is to contribute to the improved efficiency of the education system through increased intake capacities and progression rates in lower secondary and TVE schools as well as increased employability of TVE graduates. In order to achieve this objective, the project will focus attention on:

- Lower Secondary Education including development of education program, rehabilitation of 6 ESGI (Secondary Low School) and construct 2 new ESGI schools.
- Basic Technical and Vocational Education, including 3 TVE institutions.
- Decentralization of Education Management including capacity development and upgrading the facilities.

2) UNDP

"Decentralized Planning and Financing Program": Government administration, 5/2002 - 12/2006 (Ministry of Planning and Finance, DNPF Cabo Delgado, National Directorate for Planning and Budgeting in Nampula (DNPF) US $ 4.007.400

The project represents a continuation, refinement and extension of the previous District Planning & Financing Project in Nampula Province which was implemented between 1998 and 2001, taking into account the interest of other donors in replicating the Nampula experience, as well as the interest of the Government of Mozambique, UNDP/UNCDF and the World Bank in replicating the National Program on Decentralized Planning & Finance, based in the National Directorate for Planning & Budgeting of the Ministry of Planning & Finance (DNPO/MPF). The long-term development objective of the project is to contribute to poverty reduction through improved local governance in the rural districts of Nampula and Cabo Delgado. The immediate objective is to increase access by rural communities to basic infrastructure and public services, through sustainable and replicable forms of decentralized, participatory planning, financing and capacity building at the district level. The amendment to the project document which brought UNDP's project and UNCDF's project into a single program, has created a third immediate objective, namely, to strengthen and improve the capacity of the DNPO to contribute to a national decentralization strategy in the areas of local government planning and budgeting as well as fiscal decentralization.

The project in its current configuration comprises the following related components: i) the consolidation and the deepening of the Nampula Local Development Fund (LDF) program (including its extension to all districts of the province), as an official pilot for the Government's decentralized planning and finance program; ii) the flexible replication of the program in selected rural districts in the neighboring province of Cabo Delgado, including: (a) a public administration capacity building component; and (b) the provision of direct technical assistance and capacity building support to the national PPFD program in the DNPO/MPF. LDFs are intended to help define and test, in practice, different ways in which District Administrations and local communities can together plan, finance, implement, monitor and manage improvements in the delivery of local services. The results of the LDF experiment are intended to contribute to the development of a national policy on decentralization of responsibilities for service delivery, and how the necessary funds could be devolved to Local Governments under the Public Sector Reform Program. The partners of the project include Ireland/DCI, Netherlands, Switzerland/SDC,

Norway/NORAD, and UNCDF.

UNDP continues to support the above project through establishment of a local economic development agency (ADELNA) in Nampula. According to the Strategic Plan of ADELNA 2006-2008, the agency provides i) promotion of LED (Local Economic Development), ii) Development of the informal sector, iii) Access to financial services, iv) Production and access to markets, v) Promotion of measures for prevention and combat of HIV/AIDS, vi) Promotion of gender equity, and vii) project monitoring and evaluation. The UNDP also proposed a continuous program of the Support Decentralization and District Capacity Building in Cabo Delgado province with the cooperation of the Governments of Norway and Finland

3) World Bank

Municipal Development Project: Urban development and management, 8/2001 - 2/2007 (Ministry of State Administration (MSA)) US $ 33.600.000

The Municipal Development Project will strengthen the capacity of municipal governments in the areas of management, finance, and the provision of infrastructure services. It will assist the Government in the operation of legal, institutional, and fiscal frameworks, providing training to municipal officials, and staff, and, will pilot a municipal grants mechanism, to finance investments, laying the foundation for an inter-governmental fiscal system.

Specifically, the components will: i) provide technical assistance (TA) to the MSA, for the drafting of legal instruments, and the preparation of studies, manuals, and other materials needed to establish the legal, and policy framework for municipal development; ii) provide in-service training to elected, and appointed municipal officials, and staff, and, will also develop pre-service training, and provide TA to improve processes. The training will support municipal government systems, and public administration, emphasizing technical skills in municipal finance, and infrastructure delivery services; iii) provide municipalities with financial resources, through municipal grants, to implement civil works, supply equipment, provide consulting services, and enable municipalities to build the capacity to manage, and implement investments; and, iv) provide project management, and TA, including support for municipal engineering, procurement, contract management, and, supervisory, and financial aspects. The project covers 7 cities including Nampula, Nacala and Pemba.

4) USAID

1) Rural Incomes Program (Project Assistance): Agricultural development, 9/2003 - 9/20108 (International and Local NGOs) US $ 54.585.448

USAID/Mozambique's Rural Income Program (Project Assistance) consists of assistance in the form of direct financing of specifics inputs, such as goods and services in the form of technical assistance, training, equipment, and the provision of capital assistance in support of the Program. The project covers 7 provinces including Nampula, Niassa and Cabo Delgado.

2) Trade and Investment Program: Trade Policy and regulations, 9/2003 - 30/9/2010 (Several Organizations including private companies) US $ 16.755.030

Assistance under this Project will focus on three types of results:
- Markets for exports expanded, - Enabling environment for exports improved, and - Capacity of labor-intensive industries strengthened. The project covers Nampula, Niassa and Cabo Delgado provinces.

3) Health Program: Family planning, 9/2003 - 9/2010 (Several Organizations and NGOs) US $ 45.096.521

Assistance under this Project will focus on three types of results:
- Increased access to quality child survival and reproductive health services in target areas, - Increased demand at community level for child survival and reproductive health service, and – More accountable policy and management. The project covers 4 provinces including Nampula.

5) Netherlands

1) "MAP OSUWELA II - Teacher training": Primary education, 11/2000 - 6/2006 (MINED) US $ 6.204.545

Expand and improve the Osuwela model for teacher pre- and in-service training within Nampula province and to other geographical areas in the North of Mozambique. Further details are not known at the moment. The project covers Nampula, and Cabo Delgado provinces.

2) MAP Nisome Fellowships Nampula: Higher education, 5/1999 - 12/2006 (UP) US $ 5.224.886

Improve the efficiency and effectiveness of Mozambican institutions by providing support to the management of these institutions and providing scholarships to students. The project focused on Nampula province.

6) Switzerland

1) Decentralization/Democratization: Government administration, 3/2000 - 2/2007 (SDC – Nampula) US $ 6.564.885

The Projects supports 5 small municipalities in the Northern provinces of Mozambique (Cuamba, Metangula, Ilha de Mozambique, Montepuez, Mocimboa da Praia) in two areas: Good Local Governance (training, accounting, tax system, land use and land titles) and investment (mainly water and public buildings). The project is linked at national level with other projects supporting municipalities. The project covers Nampula, Niassa and Cabo Delgado provinces.

2) Rural Development Northern Mozambique: Rural development, 4/2005 - 12/2007 (Local NGOs) US $ 7.164.122

The project aims at: 1) increase productivity and commercialization, 2) contribute to the participation of the communities in the district planning dynamics and 3) promote micro-credit facilities in rural areas. Additionally, Switzerland is participating in a pool fund on land issues and the promotion post harvest technologies. The project covers Nampula, and Cabo Delgado provinces.

7) UK

1) Insecticide Treated Net Roll-Out: Infectious decease control, 7/2004 - 12/2008 (Malaria Consortium Partnership) US $ 14.793.103

To develop a sustainable market for the provision of insecticide treated nets (ITNs), and re-treatment, for malaria prevention and reduction of childhood and maternal mortality in Mozambique. The project covers Nampula, Cabo Delgado and Inhambane provinces.

8) Norway

1) Soybean Pilot promotion: Industrial crops/export crops, 11/2003 - 12/2008 (NGO) US $ 505.279

Support Pilot Project on Promotion of smallholder production of soybeans in the Nacala

corridor. Goal: Establish a commercial export operation of up to 50,000 Meticais of soybeans from Mozambique to Norway. The project focuses on Nampula and Zambezi provinces.

9) CARE International

CARE is one of the most active NGOs in the field of regional development in the northern region of the Mozambique. CARE International has been working in Mozambique since 1985 providing relief and development assistance to thousands of poor people in Inhambane, Nampula and Cabo Delgado Provinces, especially in the fields of agriculture, child nutrition and HIV/AIDS education. Currently CARE is managing 13 projects with a portfolio worth of US $ 11 million. The program aims to assist the most vulnerable groups by improving their livelihood through access to essential services such as health, agriculture, microfinance and water services. The several programs are summarized below,

1) Agricultural Development and Natural Resources Management Program: Agricultural development, On-going

The agricultural production program has identified the development of agricultural research, soil, water and pest management, irrigation, farm mechanization, small livestock, forest resources management, crop processing and agricultural marketing as key activities that will assist the economic development of smallholder farmers in the northern Mozambique.

The characteristics of the agricultural sector in Nampula province are as follows;

- Principal staple food : Cassava
- Other important food crops : Corn, sorghum, peanuts and cowpea
- Principle cash crops: vegetables, cassava, maize, peanuts, sesame, cashew nuts, cotton, and tobacco.
- Main sources of income : i) farm laborers, ii) production and sale of alcoholic drinks, sale of cassava, maize, peanuts, sesame, cashew nuts, cotton, tobacco, fruits and vegetables.
- Average farm size: 1.2 ha cultivated with access of up to 50 ha.
- Average income per person (rural) : US $ 48 per person per year
- Average annual value of farm production : US $ 195
- Average annual value of farm sales : US $ 98
- Average value of assets owned : US $ 69
- % of rural households living on less than US $ 1 per day : 83%

- Almost no fertilizer and pesticides used

CARE supports the Sesame and Groundnuts Development Program. This on-going program is described below:

Sesame and groundnuts are suitable cash crops for the weather and soil conditions in the coastal region of Nampula Province, and are able to generate a high net income. In 1999, CARE initiated a program to grow sesame as a cash crop for the oil seeds market, and now, around 8,000 tons of sesame is exported annually from the northern region. As with sesame, CARE attempts to increase both the yield and value of the groundnuts by seeking new varieties and exploring additional markets. The use of conservation farming methods will increase groundnut harvest by up to 50% and farmers can gain an additional premium of 10 to 20% over the current market price by registering themselves as organic growers. There is a growing interest from buyers in purchasing organic peanuts, peanut butter and sesame paste. The processing and packing of these products is now possible in Nampula. To implement this program, CARE works with a number of partners, including Mozambican Institute for Agricultural Research (IIAM) and ICRISAT, Farmer managed trading company of IKURU, Business Service Lda., Etc.

* Conservation farming; A set of technologies that allows farmers to plant crops earlier, reduces labour demand for cultivation, improves soil fertility through adding and mixing organic waste into the soils. It also promotes the use of leguminous crops to fix nitrogen and mobilize soil phosphates, reduces soil erosion and conserves rainfall by using crop residue and weeds as a mulch.

2) Health Program : Health, On-going

Nampula province has one of the highest numbers, after Zambezia and Sofala province, of people living with HIV/AIDS (approximately 350,000 people are infected). The percentage of the children eating food rich in Vitamin A in Nampula and Cabo Delgado is less than 45% (lowest in the country), and the percentage children who die in their first 5 years in Nampula is 22%, the lowest in the country. One out of 50 mothers dies during child birth. The percentage of the children living in the rural areas in Nampula province that are chronically malnourished is 58.5%. The CARE supported program in these 2 areas are; i) Improved child nutrition by providing families with information about the use of locally available food such as groundnuts and sesame that can be used to enrich children food, and ii) Prevention of HIV/AIDS infection by education of youth groups.

3) Water Program: Water supply, On-going

There are about 2000 potable water supply points in the rural areas in Nampula, of which only 1,200 are functioning. The number of families sharing a safe water supply point is 690. The percentage of the children in Nampula province suffering from Diarrhea in the last 2 weeks is 22%, which is the highest in the country. CARE's program emphasizes i) Installing lined wells with manual pumps, ii) Setting up water communities and a network of shops which sells water pump spare parts, iii) Saving groups to allow communities to save for buying spares, and iv) Advice on the use of water for irrigation.

CARE also supports a village saving and loan scheme (microfinance scheme), women's groups (nutrition education, training of animators), fish farming, chicken breeding, baking, and other small scale agri-businesses.

10) CLUSA

The CLUSA, Cooperative League of the U.S.A. is an NGO active in the field of agricultural development in the northern region of Mozambique. Their EMPRENDA (Empowering Private Enterprise in the Development of Agriculture in Mozambique's Beira and Nacala Corridor) Program is on-going, financed by USAID with the objective to increase per capita rural family income and promote productive asset accumulation. Along the Nacala Corridor, the project supports 10 districts, 5 in Nampula (Moma, Mogovolas, Meconta, Monapo and Erati – mostly in the coastal region), 2 in Northern Zambezia (Alto Molocue and Gurue) and 3 in Niassa (Cuamba, Maua and Marrupa). CLUSA provided services to a total of 437 associations (12,336 members, of which 3,664 are women) in 2005 and will provide services to a further 458 associations (16,570 members, of which 4,300 are women) in 2006.

The soybeans project is one of CLUSA's key activities. The project is located in the northern part of Zambezia, Cuamba and Mecanhelas in Niassa province, Malema and Ribaue in Nampula. The project implementation started with the establishment of a multi-sectoral group that included the technicians from the District Directorates of Agriculture and focal points from different NGOs. This project was a joint program with Norges Vel (Norwegian NGO) and it involved a total of 3500 farmers which were organized in farmers associations, totalizing 127 associations divided in 27 different Foras (second level associations). The Mozambican Government through the Ministry of Agriculture, its provincial and district directorates were also integral part of the project.

According to the project goals, animators from the farmers unions and associations, the

extension service officers from provincial and district directorates of agriculture, and also NGOs were target of a training program. The training included a study tour to Zambezia with participation of technicians from CARE and the Nampula Provincial Directorate of Agriculture. The main training issues were;

- Soybeans production techniques
- Pest and diseases identification and control techniques
- Harvesting, drying and trashing techniques and quality control
- HIV/AIDS prevention and control methods
- Introduction of conservation farming techniques for soybeans production

There are several international NGOs working in the region (like the aforementioned CARE and CLUSA) in the fields of agricultural development, socio-economic development, capacity building, regional planning, etc. These are;

- SNV (Netherlands-based International NGO) and
- Felicidade (Germany-based International NGO)

10) OLIPA-ODES

The OLIPA-ODES is a Nampula-based local NGO, established in 1999. They assists a network of more than 400 associations, forums and women's groups involved in agricultural, fishing and trading activities, benefiting over 15,000 families in 40 districts, centering around Nampula province. They currently implement 9 sustainable development projects in Nampula Province;

- PADILE : Local Initiatives Development and Empowerment Program) in Mecuburi, funded by EU
- PASANA : Program for Sustainable Agriculture for Associations in Ribaue, Malema and Lalaua districts, funded by Swiss Cooperation
- Assistance to Murrupula Association Program, funded by HIVOS
- Support to Small-scale Fishing Projects in Nampula and Zambezia, funded by IDPPE
- Micro-credit Project in Nampula province, funded by Netherlands Embassy
- Training Program in the Agriculture in Nampula province, funded by Cocamo
- Support to Local Initiative Development Programs of Ribaue, Malema and Mecuburi, funded by USAID through MOG
- IDEMU : Project to Initiative Development of Murrupula, funded by World Bank through MADER
- Cashew Nuts Development Project (Partnership with NAKASSO) in Nacala-a-Velha, Memba and Erati, funded by MADER/INCAJU

11) OPHAVELA

The OPHAVELA is a Mozambican NGO, which became independent in 2004 from CARE, specializing in the micro-finance sector, especially in the rural area. In the same sector, the Amoder and Novo Banco also provide services of microfinance to people in the rural areas. The current savings and credit scheme of their program is called PCR, which aims to improve the access to finance. The scheme is ongoing in 13 districts (totaling 1,300 groups) including Nampula, Rapale, Ribaue, Malama districts.

- Setting up groups in the target area (15 - 16 persons in average)
- Deposits made by members of the group (30 MTn/month/person) and keep the money in a small cash box with padlocks
- A meeting is held once a week where members discuss applications that aim to use the money from their deposit
- After approval from the members, the applicator receives money which is normally used for productive means such as agricultural inputs: hoe, shovel, seed, fertilizer, and livestock, bicycle, etc. The money should be returned to the deposit box with an interest of about 10% according to an agreed repayment schedule. Clothing for school children, materials for rehabilitation of the houses also possible purposes for loan applications
- A site manager is allocated to each district to train the group members. Usually the training program takes 8 to 12 months.
- They are intending to increase the participation rate in the groups and add new districts in the future.

Partners

- Sofala Bank Artesian Fishery Project by Institute for Development of Artisan small scale fisheries (IDPPE) - April 2005 – March 2007
- Novib and Hivos – co-financial partner (January 2005 – December 2006
- SNV and CARE Mozambique – Institutional Partners

ORAM (Mozanbican NGO) is another NGO working in the region (like the aforementioned OLIPA-ODES and OPHAVELA) in the fields of agricultural development, socio-economic development, capacity building, regional planning, microfinance, etc., which are;

12) MONASO (HIV/AIDS)

For combating the spread of HIV/AIDS, GOM established Monaso in Maputo in 1994. In 1999, the Monaso office was established in Nampula. Monaso is the implementation and coordinating agency for HIV/AIDS. They implement their programs through 68 organizations (of which half are Community Based Organizations). The major activities are composed of i) Capacity building of the organization, ii) Procurement of educational materials, condoms and other materials, iii) Awareness campaigns, iv) Advocacy.

Recent focus in their programs is to manage and integrate each organization at district level, by having exchange of the information, lesson learned, opinions, etc...A new approach is also the use of local radio for communication purposes. This is consider effective due to the low cost and the broadcast in local languages.

According to the information of Monaso, 500 persons are infected with HIV / AIDS every day. The National target is to reduce the number of daily infections to 350 persons/day within a 5 year period, and to 150 persons/day in 10 years time. The worst areas hit in Nampula province are Malema and Rabaue, which showed infection rates of 14% in 2004. According to the officials in Monaso, one of the reasons is the influx of migrant workers when the northern railway was rehabilitated in 1993 to 1995.

A campaign of combating HIV/AIDS should be implemented simultaneously with the upgrading of the road between Nampula and Cuamba.

Organizations which provide services in the area of HIV/AIDS are mainly located in Nampula. CARE, Save the Children, and World Vision are very active in this area. Monaso has an important responsibility to coordinate activities in the area of HIV/AIDS to achieve a more effective intervention. In this regard, enhancing Monaso's management capability, including upgrading of its information system, should be encouraged to enable improved operation.

13) CPI (Center for Promotion of Investment)

CPI is the governmental organization, established under the Ministry of Planning and Finance, for the promotion of the public and private, and international and domestic investments in Mozambique. CPI Nampula was established in 2003, when an International Conference was held about the "Nacala Development Corridor". The main missions of the CPI are;

- Development and establishment of regulations, rules, guidelines for the investment
- Development and establishment of the articles and clauses of the profits and free zone regulations
- Support the procedures of development application for approval for the investor
- Support evaluation of the application for the government
- Support approval procedure for the government

CPI assists domestic projects with an investment between US $ 5,000 to 100,000 and foreign projects with an investment of US $ 50,000 or more.

The current major investments in Nampula province are;

- Heavy sands in Moma, under construction, open in 2007 : Titanium, Ziloon, Ratilo for ink, spare parts of the health equipments, material for airplane, etc.
- Nacala Corridor Project, concession to the USA-based company : Rehabilitation of the Nacala port and northern railway
- Texmoque : Cotton Factory sold to the Tanzanian company

The major investments in the past in Nampula province are;

<u>In Nacala</u>;

- Cement factories of Arj Nacala and Mozambique Cement
- Flour mill factories of CIM Nacala and GANI Nacala
- Salinas Matins (Refining and iodating of salt)
- Fabrica de Sacos de Rafia
- Cereal Silos (Cereal warehouse)
- Complexo Naherengue (Restaurant, bar, beach resort)

<u>In Nampula</u>;

- Coca Cola
- Cashew Nuts Factory (7 establishments)
- Tobacco factory
- Ind. Macanica de Madeiras (Timber processing and furniture manufacture)
- Fabrica de Fruta Tropical (Tropical fruit processing)
- Fabrica de Sacos Plasticos (Plastic bag manufacturing)
- Cereal Silos (Cereal warehouse)
- Captacao Agua Mineral (Capture and bottling of mineral water)

<u>In other locations</u>;

- Fabrica de Caju in Nametil-Mogovolas (Cashew nuts processing)
- Fabrica de Precessamento de Cereais in Malema (Cereal processing)
- Fabrica de Processamonto de Mandioca in Angoche (Cassava processing)
- Cereal Silos in Iapala-Ribaue (Cereal warehouse)

- Complexo Praia Nova in Angoche (Restaurant, bar, beach resort)
- Captacao Agua Mineral in Ribaue (Capture and bottling of mineral water)

CPI furthermore informed that the following investments are planned in Nampula province;

- Cement factory
- Tourism Development (beach resort and hotel) in Malema
- Agriculture/agro-industry (production of Bio-diesel from Jatorofa plant for import-substitute)
- Transport, especially the road between Nampula-Cuamba, and Cuamba-Lichinga
- Warehouse (for the natural calamity)
- Horticulture at Iapala (Vegetable growing, improvement of irrigation system)
- Soybeans in Gurue

The Table 2.1.3 (a,b) shows the outlines of the planned projects and programs, proposed in their District Development Plans in the Study Area and the Table 2.1.4 shows the on-going projects by donors in the northern region.

Table 2.1.3 a. Outline of Planned Projects and Programs in the Study Area-1

	NAMPULA District	RIBAUE District	MALEMA District	CUAMBA District	NAMPULA Province	Major Donors
Road	Rehabilitation of main roads	Rehabilitation of EN104, EN8-Iapala, ER512 R/Lalaua, EN8	Rehabilitation of ER 484 and other main roads	Rehabilitation of main roads	Rehabilitation of main roads incl. Rapale-Mecuburi, Nampula-Moma, Nampula-Angoche, Nampula-Luipo-Angoche	◆W/B:Road III Program ◆EU ◆MCC ◆IDA ◆Sweden ◆AfDB ◆Japan
Telecommunication	Construction of EDM sub-station at Namaita and Mutivase, and Improvement of communication systems in Rapale and Anchilo	Construction of local office of TDM	-	Improvement of telecommunication system (line and wireless)	Improvement of telecommunication system (line and wireless)	-
Electricity/energy	Construction of TDM antena at Namaita	Construction of local office of EDM	-	Expansion of electricity supply system	Extension of Rapale-Mecuburi high-voltage line	①AfDB:Rural Electrification Project III ② Netherland(NGO):Gas Supply Project
Water/sanitation	Improvement of rural water supply (well)	Improvement of rural water supply (well)	-	Improvement of urban sanitation	Construction and rehabilitation of water supply systems incl. rehabilitation and construction of water sources (boreholes) at Nampula, Ribaue, Malema,	③AfDB:ASUNANI Project
Governmental facility	Construction of govermental facilities and equipments	Construction and rehabilitation of governmental facilities and equipments	-	Construction and rehabilitation of governmental facilities and equipments	Construction and rehabilitation of governmental facilities and equipments	-
Education facility	Construction of schools and staff's houses	Construction of primary and secondary schools	Improvement of the education service	Construction of schools and staff's houses and training teachers	Construction of primary and secondary schools and libraries at all district	④AfDB:Education IV Project ⑤Portugal:Book Fair/Rural Families School Program ⑥ Netherland ⑦Ireland ⑧W/B ⑨Switzerland ⑩IFP:Japan
Medical facility	Improvement of medical and health care service	Improvement of medical and health care service	Improvement of medical and health care service	Improvement of medical and health care service	Improvement of medical and health care service	⑪UK(NGO):Malaria Program ⑫
Other facilities	Construction of cultural facilities	-	-	Construction of facility for valnerable persons	-	-
Agriculture	Expansion of extension services	Expansion of extension services	Expansion of extension services	Expansion of extension services	◎Identification of varieties of cassava resistant to the diseases ◎Prospecting of the tsetse fly, ◎Promotion of the establishment of community pharmacies and private veternary practices, ◎Train producers in fish farming, ◎Promotion of technology of low-cost agro-processing, ◎Project reforestation with seedling, ◎Mushroom production and processing, ◎Production of honey, ◎Production of low-cost wood processing thechniques, ◎Promotion of multi-media programs addressing various issues with cashew plant.	⑬FAO:Food and Nutrition Security Program ⑭EU (NGO) ⑮Switzerland(NGO): Rural Development Northern Mozambique ⑯Belgium (NGO) ⑰USA(NGO):Rural Income Program ⑱ Norway(NGO):Soy Beans Project ⑲Denmark(Private Sector):ADIPSA ⑳ USA(NGO):Trade and Investment Program
	Promotion of tabacco and cotton	-	-	-		
	Promotion of livestock raising and poultry	-	-	Promotion of livestock raising and poultry		
	Developmengt of pisciculture	-	-	-		
	Organization and strengthning of producer's	Organization and strengthning of producer's	Organization and strengthning of producer's	Organization and strengthning of producer's		
	-	Rehabilitation of agricultural technical school	-	-		
Other industries	-	Construction and improvement of rural	-	Construction and rehabilitation of rural markets		
	-	Reactivation of commercial activity	Promotion of rural commericla activities	Promotion of rural commericla activities		
				Establishment of mineral exploitation industry		
	-	-	-	Construction of professional training center		
	Tourism Development	-	-	Tourism Development	Tourism Development	❶W/B:Tourism Project
Natural protection/ environment	Pretection of forfest fire	Protection of forest and measures for fire protection	-	-	Combat soil erosion and natural conservation	❷Netherland(NGO):Natural Resource Management
Other Sectors	Combat against HIV/AIDS	Combat against HIV/AIDS	Combat against HIV/AIDS	Combat against HIV/AIDS	Combat against HIV/AIDS	❸EU (NGO) ❹Aistria (NGO)
	-	Improvement of rural credit service	-	Improvement of public security	capacity development of governmental staffs	❺UNDP and EU(NGO):District Planning and Financing Program ❻ Switzerland(NGO): Decentralization/Democratiz

Source: District Development Plans and Project Information about Donors

Table 2.1.3 b. Outline of Planned Projects and Programs in the Northern Region-2

Major Donor's activities area as follows;

Ref. No.	Project title	Donor>Impl. Body	Project area	Outlines
①	Rural Electrif. Project (III)	AfDB(2001-2007)>EDM	Outside Study Area	Need coordination and/or cooperation as integrated regional development
②	MAP PPP VidaGas	Netherlands(2005-2009)>NGO	All districts in Nampula and CaboD. Provinces	Promotion of LPG as alternative energy source of the people in the northern region (domestic fuel and lighting, for clinic)
③	ASUNANI (Integrated Water Supply and Sanitation) Project	AfDB(2001-2007)>Public works and housing	All districts of Nampula & Niassa Provinces	Development of wells, toilets, capacity building, sanitary education, monitor, campaign, etc.
④	Education IV	AfDB(2002-2008)>Education and Culture	All districts in the 3 northern provinces	ESG1(Lowere secondary schools, Teacher training, capacity development of gov. staffs)
⑤	Portuguese Book Fair in Mozambique	Portugal(2004-2006)>Education and Culture	All districts in Nampula Province	Supply of Portuguese books to the rural people
⑪	Insecticide Treated Net-Roll-Out （Maralia Program)	UK(2004-2008)>NGO	All districts in Nampula and CaboD. Provinces	Measure against Malaria (promotion of net and drug)
⑫	Health Program	USA(2003-2010)>NGO	All districts in Nampula Province	Integrated support for mother and child health
⑬	Strengthning Livelihood through Food and Nutrition Security in Valnerable SADC Countries	FAO	Outside Study Area	FAO's food and nutrition security program in wide area
⑮	Rural Development Northern Mozambique	Switzerland(2005-2007)>NGO	All districts in Nampula and CaboD. Provinces	Increase of agricultural production, commercialization, microcredit, etc.
⑰	Rural Income Program	USA(2003-2010)>NGO	All districts in the 3 northern provinces	Supply of agricultural machines/materialsw, technical assistance, training, financial support, etc. in the Nacala and Beira corridors
⑱	Soybean Plantation	Norway(2007-2009)>NGO	All districts in Nampula Province	Production of 50,000 mt of soy beans for animal feed and export it to Norway
⑲	ADIPUSA(Danida Private Sector Development Program)	Denmark(2001-2008)>Private Sector	All districts in Nampula Province	Regional development and prverty reduction through encouragement of enterprenuere in the rural area
⑳	Trade and Investment Program	USA(2003-2010)>NGO・Private associations	All districts in Niassa Province and some districts in Nampula and Cabo D.	Marketing, improvement of export environment, promotion of trade, etc.
❶	Transfer Conservation Areas and Tourism Development	W/B(2006-2013)>Tourism	All districts in Niassa Province	Nature conservation and tourism development, and capacity development in the border zone of Tanzania
❷	ORAM Nampula	Netherlands(2006-2011)>NGO	All districts in Nampula Province	Building of land management system by the community (community forest, control of slash-and-burn)
❸	Care Osterreich Aids Prevention, Positive Living and Empowerment (APPLE)	EU(2004-2006)>NGO	All districts in Nampula Province	Support to Battle against Hiv/Aids in the Nacala and Maputo corridors, completed in 2006
❺	Decentralised Planning and Financing Programme	UNDP(2002-2007)>Planning and finance	All districts in Nampula Province and some districts in Cabo D. Provoince	Supply of equipments, capacity development, TA at central level
❻	Decentralisation/Democratisation (PADEM)	Switzerland(2000-2007)>NGO	Cuamba District, City of Nampula, others	TA for development planning for Cuamba District and City of Nampula

Source; Various sources

Table 2.1.4. Outline of On-going Projects and Programs by Donors in the Northern Region

Donor	No.	Name of the Project/Program	Sector															Province			Committed Project cost(million US$)		Period	Implementation Body
			Infra and Energy	Agri Forestry fishery	Trade	Tourism	M Credit	Private sector	Health Maternity	HIV/AIDS	Education	Culture	Capbuil Organization	Env Cons Resource Mgmt	Governance	Participatory	Gender Vulnerable	Emergency/ Security	Nampula	Naissa	Cabo Delgado				
AfDB	1	Education IV Project									X		X						All Districts	All Districts	All Districts	27.8	0.2	2001/9-2007/12	Direccao de Construc
	2	Rural Electrification Project-III	X										X						Moma, Muecate, Murrupula, Nacaroa	-	-	28.0	2.5	2001/9-2007/12	EDM
	3	Integrated Water Supply & Sanitation Project (ASUNAN)	X										X						All Districts	All Districts	-	27.0	4.8	2001/8-2007/6	DNA
World Bank	1	Municipal Development Project											X		X	X			Nampula and Nacala cities	-	Pemba city	33.6	23.7	2004/4-2008/6	MINISTRY OF STATE ADMINISTRATION
	2	Railway and Ports Restructuring Project	X										X						Nacala	-	-	100.0	79.5	2004/4-2008/6	Caminhos de Ferro de Mocambique
	3	National Water II	X										X						Nampula city	-	Pemba city	90.0	63.7	2000/3-2007/9	FIPAG
	4	Trans-frontier Conservation Areas and Tourism Development Project				X								X					-	*	*	20.0	1.6	2006/1-2013/6	MINISTRY OF TOURISM, TFCA UNIT AND OTHERS
UNDP	1	National Integrated Programme for Social Action, Employment and Youth											X		X	X			4 Districts	2 Districts	2 Districts	2.2	2.2	2002/6-2006/6	National Commission for Social Reintegration
	2	Local Government Reform											X		X				3 Districts	-	3 Districts	1.2	1.0	2003/7-2006/12	National Directorate for Local Government (DNAL)
	3	Strengthening Democracy and Governance through Development of Media in Mozambique													X	X			Nampula city	3 Districts	-	4.0	3.3	2004/10-2006/9	UNESCO
	4	Supporting Citizens' Access to Justice											X		X	X			All Districts	-	-	0.3	0.1	2005/7-2009/6	Fundacao Enterprise Mozambique
	5	Decentralised Planning and Financing Programme											X		X	X			All Districts	3 Districts	7 Districts	4.0	3.3	2004/10-2006/9	DNPF Cabo Delgado, National Directorate for Planning and Budgeting (DNPO) - Ministry of Planning and Finance
	6	Acess to Urban and Peri-Urban Water, Sanitation and Hygiene Promotion	X																Nampula city	-	-	4.2	3.7	2002/1-2006/12	5 municapalities
UNESCO	1	Protection of world heritage properties																	MZ Island	-	-	0.0	0.0	2006/1-2007/12	UNESCO
		Organization of a youth camp in the island of Mozambique																	MZ Island	-	-	0.0	0.0	2006/1-2007/12	UNESCO
	2	Restoration of the San Sebastean Fortress																	MZ Island	-	-	0.0	0.0	2005/1-2008/12	UNESCO
FAO	1	Strengthening Livelihoods through Food and Nutrition Security in Vulnerable SADC Countries (Mozambique Component)																X	3 Districts	3 Districts	1 District	0.8	0.5	2006/1-2007/7	DPA of Each Province and FAO
	2	Support to Community Forestry and Wildlife Management (phase II)		X									X	X		X			Old Nacala District	-	-	0.9	0.7	2003/8-2006/12	NGO
EU	1	Care Osterreic-Aids Prevention, Positive Living and Empowerment								X									All Districts	-	-	4.4	2.7	2006/12-2006/12	Care
	2	Collegio Universitario Aspiranti, Salde para a Populaso de Moma - Projecto sanitario integrado num Distrito rural de Mozmbique									X								Moma District	-	-	0.9	0.3	2005/12-2010/7	COLLEGIO UNIVERSITARIO ASPIRANTI E
	3	Concern Worldwide- Decentralized Participatory District Planning in Nampula											X			X			All Districts	-	-	0.9	0.3	2002/1-2006/1	Concern
	4	Concern Worldwide-Advancement of Primary Education and Adult Literracy in Nampula City									X								Nampula city	-	-	1.1	1.1	2002/1-2006/1	Concern Worldwide
	5	Oikos- Orreriha Phase II, Apoio a Iniciativas aos Profissionais- Ilha de Mocambique									X								MZ island	-	-	0.3	0.3	1998/5-2000/2	Oikos
	6	Care Pasana-Nampula 99/02		X									X						All Districts	-	-	0.5	0.4	2004/12-2005/7	Care Deutschland
	7	Final and ex-post valuation of NGO projects in Northern Mozambique											X						All Districts	All Districts	All Districts	0.2	0.2	2004/9-2005/12	HTSPE
	8	World Vision UK-Nampula											X						All Districts	-	-	2.3	2.2	1999/10-2005/6	WORLD VISION UK
	9	ISCOS, Supporting and networking Civil Society Organizations and Public Institutions for an improved capacity to face Human Rights Issues in Mozambique																X	All Districts	-	-	0.8	0.3	2006/1-2009/1	ISCOS
USA	1	Rural Incomes Program (Project Assistance)																	All Districts	All Districts	All Districts	54.6	23.3	2003/9-2010/9	17 NGOs
	2	Trade and Investment Program		X	X								X						1 District	All Districts	Pemba City	16.8	8.8	2003/9-2010/9	3 NGOs
	3	Health Program (Project Assistance)							X										1 District	All Districts	All Districts	45.1	11.4	2003/9-2010/9	8 NGOs
	4	Municipal Governance Program													X	X			Nacala city	-	-	8.1	4.3	2003/9-2010/9	4 ORGs
UK	1	Insecticide Treated Net Roll-Out																	All Districts	-	All Districts	8.6	1.5	2004/7-2008/12	Malaria Consortium Partnership
Switzerland	1	Decentralization/Democratisation	X												X				All Districts	All Districts	All Districts	6.6	5.6	2000/3-2007/2	SDC - Nampula
	2	Rural Development Northern Mozambique		X	X		X									X			All Districts	-	All Districts	7.2	3.7	2005/4-2007/12	Various NGOs
	3	Water - Mandate Care	X																All Districts	-	All Districts	4.3	2.0	2004/7-2007/12	CARE
Sweeden	1	Impact of HIV/AIDS on Orphans and Vulnerable Children (Through SCF)								X			X						Nacala	-	-	2.0	1.3	2004/5-2008/6	Save the Children
Portugal	1	ADPM - Monapo - Straight to Development																	All Districts	-	-	0.2	0.2	2005/1-2005/12	NGO
	2	Technical support from IPPAR for the recovery and rehabilitation of the Architectural Patrimony in the Island of Mozambique				X						X							MZ Island	-	-	0.0	0.0	2004/1-2005/12	MC/IPPAR
	3	Rehabilitation of the fortress in the Island of Mozambique				X						X							MZ Island	-	-	0.6	0.6	2004/1-2005/12	CM UCCLA
	4	Portuguese Book Fair in Mozmbique									X								All Districts	-	-	0.3	0.3	2005/1-2005/12	MC/IPLB
	5	ISU - Creation of 'Rural Families Schools' and a Centre for Teachers training									X						X		All Districts	-	-	0.3	0.3	2004/1-2005/12	NGO/University
Norway	1	Soybean Pilot promotion		X	X								X						All Districts	-	-	0.5	0.5	2003/11-2008/12	CLUSA
Netherland	1	MAP PPP VidaGas	X						X										All Districts	-	All Districts	1.0	0.5	2005/11-2009/12	VidaGas
	2	ORAM Nampula 2006-2011												X					All Districts	-	-	1.4	0.2	2006/1-2011/12	ORAM
	3	MAP OSUWELA II - Teacher training									X								All Districts	-	-	6.2	4.6	2000/11-2006/6	MINED
	4	MAP Adult Education Mutauanha									X								All Districts	-	-	1.8	1.8	2001/3-2006/12	DPPF
	5	MAP Participatory Planning MAMM II													X	X			All Districts	-	-	2.3	2.2	2002/1-2006/12	SNV
	6	MAP Nisome Fellowships Nampula									X								All Districts	-	-	5.2	4.8	1999/5-2006/12	UP
Italy	1	Support to Primary Health Programmes of							X										Nampula city	-	-	0.9	0.6	2004/11-2007/12	UP
	2	Production of Sea-weeds Kappaphicus Alvarezil for Sustainable Livelihood in Nampula		X															Old Nacala District	-	-	1.0	0.6	2004/10-2007/9	NGO
	3	Mother Mortality Reduction in Rural Areas							X										Erati District	-	-	0.4	0.3	2004/9-2008/11	NGO
	4	Promotion of appropriate procedures within the prison reform framework															X		All Districts	-	-	1.6	0.5	2006/1-2008/12	NGO
France	1	Projecto de relance do sector do Anacl硫dio		X															Angoche, Mogovolas, Moma Districts	-	-	4.9	3.4	999/108-2006/12	Bank of Mozambique
	2	Apoio - formaro dos professores de francs									X		X						Nampula city	-	-	2.1	1.3	2002/11-2008/5	MEC
	3	Promoto da lingua francesa									X		X						Nampula city	-	-	2.0	2.0	2007/1-2008/4	SCAC
Denmark	1	Urban Environmental Management in 7 Municipalities											X		X				Nampula, Nacala, MZ Island	-	-	1.2	0.8	2005/12-2010/12	Municipalities
	2	Support to Decentralization Energy System	X										X						Nampula city	Lichinga	Pemba	1.1	0.0	2002/8-2007/8	Ministry of Energy
	3	Danida Private Sector Development Programme - Business to Business		X	X			X					X						All Districts	-	-	3.3	3.3	2001/1-2001/8	Private sectors
Belgium	1	NGOprogram - Support to agricultural cooperations, food security and water provision	X	X									X					X	All Districts	All Districts	-	1.7	1.0	2003/1-2007/12	Oxfam
	2	Belgian Survival Fund - Food Security in Northern Mozambique		X														X	All Districts	-	All Districts	1.3	0.9	2001/1-2006/12	Oxfam
	3	Belgian Survival Fund - Sofala Bank Artisanal Fishery Project - Community and Health Component							X				X						All Districts	-	-	4.2	4.2	2001/1-2006/12	IFAD
Austria	1	Support to CARE Project APPLE - Aids Prevention, Positiv Living and Empowerment							X	X			X						Nampula city, Ribaue	Mandimba	-	0.3	0.1	2006/1-2007/12	Care

2.2 Regional Development Issues

2.2.1 Study Areas and Sectors

1) Alignment

a) Area along the Road between Nampula and Cuamba

The area covers the adjacent area along the projected road between Nampula and Cuamba, (largest part of the Nacala International Corridor in Mozambique). The area is composed of 5 districts (Cuamba, Malema, Mecuburi, Ribaue and Rapale) with a high potential for agriculture, and Mozambique's third largest city (Nampula). The city of Nampula has large markets, processing factories, governmental and commercial facilities. The northern railway line is running parallel with the road and the most economical active area in the northern region. The size of the area is around 27,900 km2 and the population is around 1,226,900 (2006). The population density is 44.0 persons/km2.

b) Area along the Nacala International Development Corridor

The area along this corridor (connecting the 3 countries of Zambia, Malawi, Mozambique with the Nacala International Port) covers in a modest interpretation the southern region of Niassa Province (including Mandimba, Chiuta, Cuamba), the northern region of the Zambezia Province (including Milange, Gurue, Alto Molocue), all districts of Nampula Province and Nacala International Port). This area has a very high agricultural development potential and is named the "Grain belt of Mozambique". In a broader sense, the area covers the whole northern region of the country, which is composed of Niassa, Cabo Delgado and Nampula Provinces. This area is seen as one of the expected areas for economic development in the southern region of Africa.

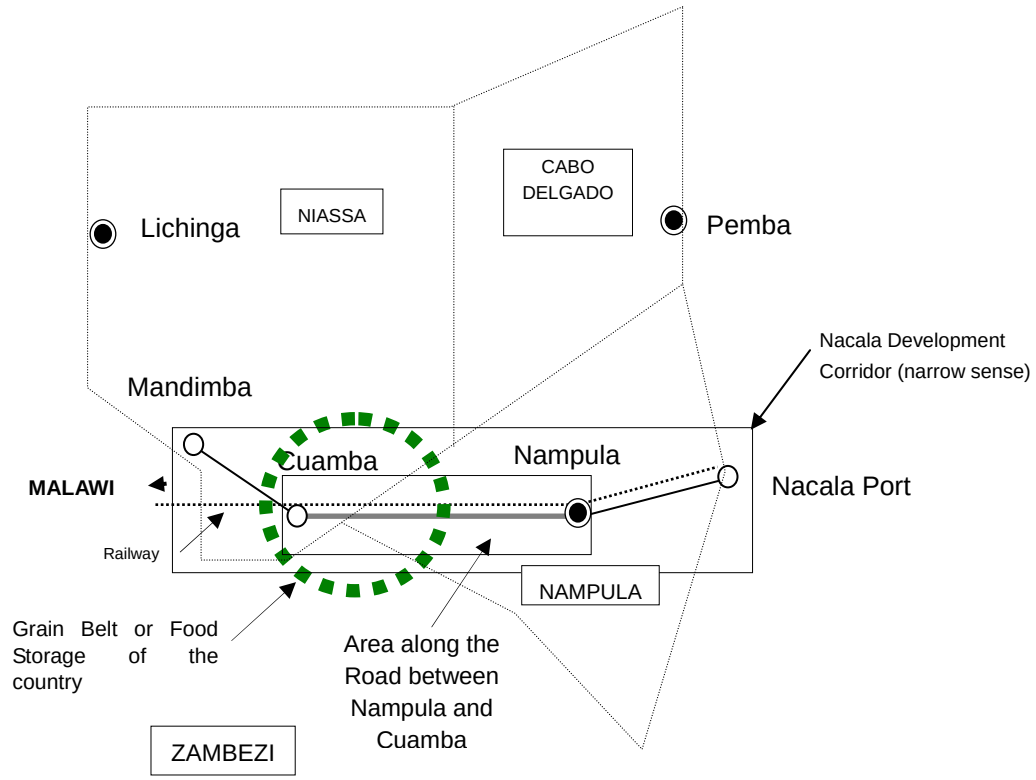


Figure 2.2.1 Area Involved for the Regional Development Study

2) Sectors Involved

Agriculture and rural development are the highest priorities in the National Development Plan, PARPA and the Regional Development Plans. The provision of basic services for human capital including health, education, water supply is also emphasized as a high priority sector especially in the northern region of the Mozambique. This regions has suffered from a backlog in the supply of such services. Roads and other socio-economic infrastructure is also mentioned as important for the acceleration of the development of aforementioned sectors. Thus the regional development study includes;

a) Agriculture and Rural Development

b) Basic Services for Human Capital

c) Road and Other Socio-economic Infrastructures

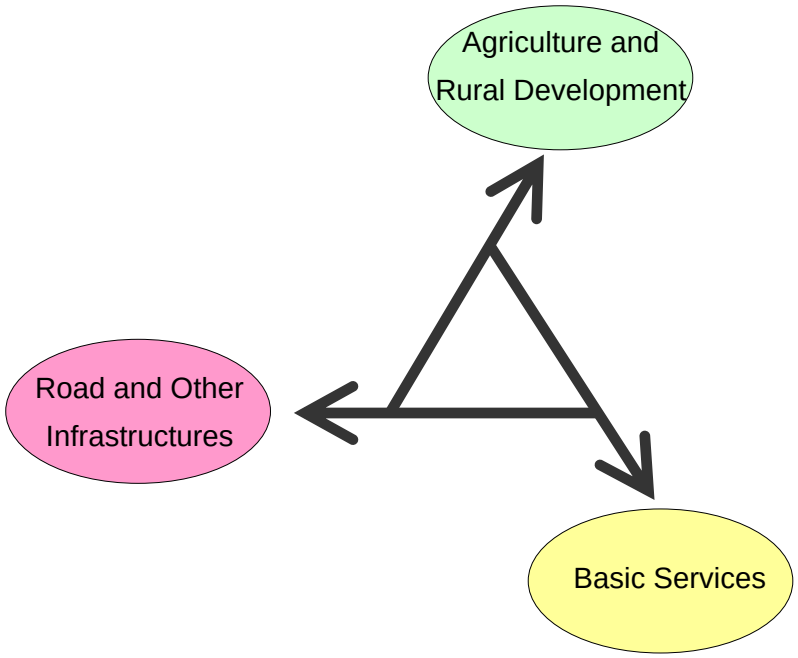


Figure 2.2.2 Sectors Involved for the Regional Development Study

2.2.2 Target Year and Development Program

a) Short-term: 5 years from 2008 to 2012: Formulation of Development Policy and Strategy (The year of 2012 is the target year for the road completion, and the start of the Regional Development Plan of the Nampula Province.)
b) Mid-term: 5 years from 2013 to 2017: Formulation of Development Policy
c) Long-term: 10 years from 2018 to 2027: Formulation of Long-term Perspectives

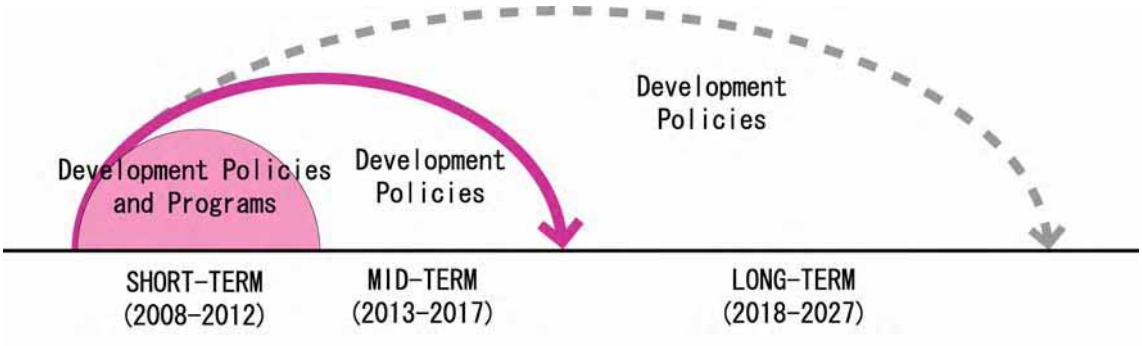


Figure 2.2.3 Target Years and Development Programs

2.3 Identification of Regional Development Issues

2.3.1 Precedence Plans

1) National Development Plan

The implementation of PARPA, aiming at poverty reduction, is on-going since 2000. The GoM is currently midway through its PARPA II program (2005-2009). The target for absolute poverty reduction is set at 9 % (a maxim level of 45% absolute poverty in 2009 coming from 54% in 2003). Table 2.3.1 shows the important sectors of PARPA II.

Table 2.3.1 PARPA-I and -II

PARPA-I (2000-2004)	PARPA-II (2005-2009)
1) Education（Primary and Secondary）	2) Human Capital（Education、Health）
2) Health （STD/HIV/AIDS、Maternity and Children）	
3）Agriculture and Rural Development（Increase of Income through Increase of Productivity and Improvement of Accessibility to the Technology, Input, Market and Financial Source）	3） Economic Development （Agriculture and Rural Development, Infrastructures, Macro-economic and Financial Policies）
4） Infrastructures（Road, Energy and Water）	
5） Good Governance, Legality and Justice （Decentralization and De-concentration、Legality, Justice and Public Order, Fight against Corruption, etc.）	1) Good Governance
6） Macro-economic and Financial Policies （Fiscal and Monetary Policy, Mobilization of Budgetary Resources, Management of Public Expenditure, Development of Financial Market, Promotion of International Trade	Included in 3) above

The main differences between PARPA I and its successor PARPA II are as follows;

- A shift from social to economic development (Improvement of financial system, decentralization, regional development by districts, economic development of the rural areas, etc.)
- More investment in the agricultural sector (irrigation system, research, technology, extension, artisan fishing)
- Road, electrification, tourism, and technical and higher education, medical facilities in the rural area, continuous effort on fighting against HIV/AIDS
- Public-Private Partnerships(PPP) for the structural transformation of agriculture (Agro-business, privatization of public services, joint investment, investment to reinforce the network of rural institutions and organizations, development of the commercial network, strengthening of rural financial service)
- Strengthening of Rural Areas (Define policies and strategies for rural development,

increase of productivity and commercialization, gradually turn family producers into commercial farmers, Increase of non-agricultural income, agro-industry, job creation, technical and vocational training, reduction of population outflow)

- Improvement of Accessibility to Basic Services, such as Health, Education and Water Supply Services, Especially in the Northern Region, where access to these services is very low.

2) Regional Development Plans

At the region, development plans exists at provincial, district and city levels. In the area along the project road, the following plans are available;

a) Development Plan of Nampula and Niassa Province

The main objectives of the development plan of Nampula Province (2003-2007) are the reduction of poverty through a sustainable increase in production and through the improvement of equity and equality in the distribution of wealth. The important development sectors mentioned in the plan are as follows;

- Economic growth through the strengthening of the business, private and public sectors and associated sector.
- Human and social capital development
- Infrastructure provision
- Institutional and organizational development
- Guarantee the sustainable use of resources

b) District Development Plans

The outline of the development plans of the districts along the project road can be summarized as shown in Table 2.3.2.

Table 2.3.2 District Plans of the Area along the Project Road

District (Target year)	Major Important Development Sectors			
Rapale (2005-2009)	Strengthening the linkage with Nampula City (agriculture, housing)	Strengthening the linkage among producers associations, private enterprises, NGO and Government)	Basic Service for Human Capital （ education, health, water supply）	
Mecuburi	(Not available)			
Ribaue (2000-2004:）	Improvement of road	Health, education and vocational training	Increase of agricultural productivity, Organization of producer's association, improvement of financial services, promotion of animal husbandry)	
Malema (2000-2004:）	Agricultural development	Basic Service for Human Capital （ education, health, water supply）	Sustainable use of natural resources	Community participation to the regional development
Cuamba (2005-2009）	Infrastructures for economic development	Improvement of public administration service	Promotion of private investment	Basic Service for Human Capital （ education, health, water supply）

c) Development Plan of the Nampula City (2000-2005)

The development plan was formulated in 1999 and now requires an update. According to the city development section in the Municipality, the major development sectors are

- Improvement of Water Supply System
- Improvement of Urban Environment (Solid waste and Wastewater Management)
- Housing Development and Land Use Plan

2.3.2 Present Conditions of the Region and Development Issues

1) Population

- The population density of Nampula, Cabo Delgado and Zambezia Provinces are the highest in the country. On the contrary, Niassa is the lowest populated Province in Mozambique. However, the population density of Cuamba District and surrounding areas are similar to that of Nampula Province. The population of Nampula Province stands at 3,766,981 (2006), of which about 10% (or 379,642) lives in the city of Nampula. About 90% (or 3,386,981) of the population in

Nampula lives in the rural areas. The province has 20 Districts, and each district is divided into 3 to 4 Administrative Posts, which are further subdivided in localities and communities.

- The average district population size in Nampula Province is 169,349. The population of the 4 districts along the study road is similar to the average. The total population of the 4 districts along the study road and Nampula city is 1,034,779, which covers 27.5% of the total provincial population. The population grew at a rate of 2.5%-2.9% from 2004 to 2006, which is slightly higher than the average rate of the province. Cuamba District has a larger population (192,092) with a population growth rate of 3.7%. The total population in the area along the project road, including Cuamba district, is 1,226,871. The number of households of this population is estimated at around 245,000 units, if the average family size is taken as 5 persons per household.

Table 2.3.3 Number of Population of the Area along the Project Road

Year District/city	2004	2005	2006	Growth rate （2004～2006）
Nampula City	363,293	371,370	379,642	2.2%
Malema	159,524	163,875	168,350	2.7%
Rabaue	156,060	159,903	163,847	2.5%
Mecuburi	145,846	149,636	153,529	2.6%
Rapale	160,010	164,640	169,411	2.9%
Sub-total	984,733	1,009,424	1,034,779	2.5%
Cuamba	178,632	185,254	192,092	3.7%
Total	1,163,365	1,194,678	1,226,871	2.7%
*Nampula Province	3,588,347	3,676,005	3,766,623	2.5%

Source: INE (Year 2006)

- The pattern of population distribution in the rural area is disperse in most areas. The population in the area along the study road, except the population of Nampula City, was 761,270 in 2003. Of these, only 25.6% lived within a distance of 10 km from the study road (both sides). If the area is extended up to 30 km distance from the study road (both sides), the population covers still only 62.8%. The remaining 37.2% of the population is living in remoter areas. This disperse population distribution pattern makes the accessibility to the various services to the all people.

Table 2.3.4 Population Distribution of the Area along the Project Road

	Total	0～10km zone	0～30km zone	Over 30km zone
Malema	149,781	47,289	98,535	51,246
Rabaue	153,794	38,468	96,131	57,663
Mecuburi	142,687	16,131	79,409	63,278
Rapale	153,450	46,754	100,102	53,348
Cuamba	161,558	46,308	103.933	57,625
Total	761,270	194,949	478,109	283,160
Share	100.0%	25.6%	62.8%	(37.2%)

Source; INE (Year 2003)

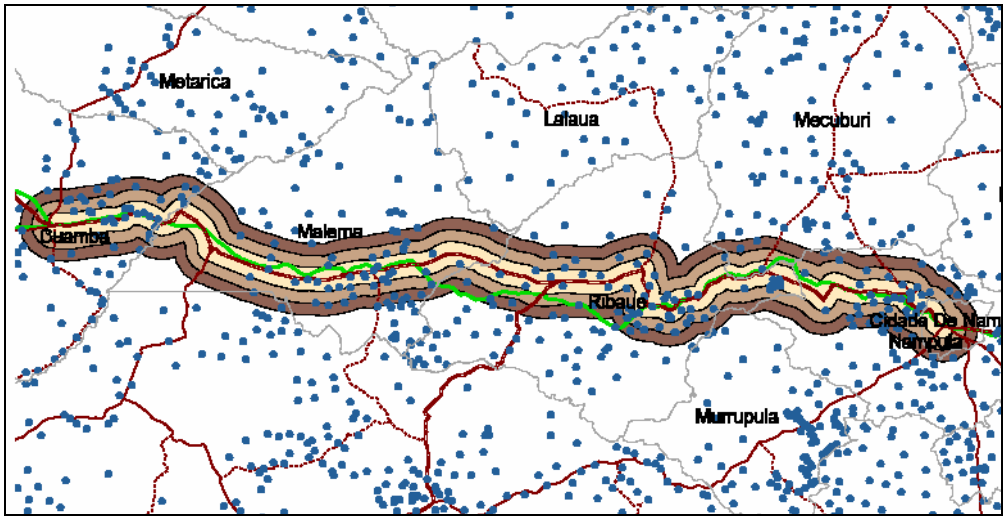


Figure 2.3.1 Village Distribution of the Area along the Project Road

2) Industrial Activities

- Agricultural production is the predominant activity in the region, followed by commercial activities, transportation, selling and processing of the agricultural products. Only the population that lives close to the study road or railway stations has the opportunity to access such commercial activities. The majority of the rural population engages in subsistence farming.
- The is caused by a lack of transportation, especially in the rainy season due to impassable roads, and lack of access to technology resulting in low agricultural productivity reliant on manpower only.
- Various buildings in the district centers and administrative posts such as stores, processing factories, restaurants and shops,, which were built and used as commercial and industrial facilities in the Portuguese colonial era, are not effectively used or not used at all. There are several possible explanations for this such as “the transfer the government assets to the private sector has not succeeded”, “two is the private sector can still not these assets”, and “these facilities are too

deteriorated to be used"". Therefore, it is recommended to study the re-use or renewal of these facilities and to strengthen the industrial and commercial functions of the rural centers in the hinterland as an effective measure to revitalize the socio-economic environment

- The organization of individual farmers into groups, such as producer's associations, is very important for the promotion of agriculture and rural development. This process was already started by government initiatives, and is accelerated by the efforts of NGOs and support from Donors. These groups receive extension services and inputs (seeds, fertilizer, etc.), and the unit of cooperative production, shipment, sales, and also the unit of challenging to create new job and income from non-agricultural sector.
- The groups are a platform to further stimulate agricultural and rural development. However, the number of these groups is still very low. It is assumed that only less than 10% of the farmers, who live near the study road and the rural centers participate in these groups. The continuation of this process, i.e. "Organizing Individual Farmers into Groups" towards the remoter areas involving a large number of farmers will be a key issue
- The City of Nampula is the capital of Nampula Province. The city has several formal and informal markets as well as centers of agricultural processing (factories of flourmills, fruits, cotton, tobacco, biscuit, cashew nuts, and storage of products, saw miller and furniture factory, etc.). In addition to the above facilities, factories for cola, mineral water and plastic bags are the major industrial activities in the city.
- The city of Nacala has an International-port, cement factories, flourmills, salt, storages for agricultural products, etc.) The new factory for heavy sand processing in Moma is going to open this year. However, while some facilities are new and modern, the most of the facilities were built and are operating since the Portuguese colonial era. Therefore many of the buildings and equipments are deteriorated and some are closed to operation. The revitalization, modernization and privatization of these facilities is the one of the important issues for the economic development of the northern region.

3) Land Use

- The number of people living in the adjacent belt (10 km from the road for both sides) to the study road is estimated at about 26% of the total rural population. The rest of the population is scattered in a vast hinterland, especially along the rivers and mountains, which are suitable for agricultural production. Most of them are farmers, producing food crops such as cassava, maize, sorghum, peanuts, beans,

vegetables, etc. Some of the farmers, especially those living close to the study road, also produce cash crops such cashew nuts, sesame, cotton, tobacco, fruits, etc. Typically, most are family farmers with an average size of the farmland of 1 ha. There are some private enterprises, who contract neighboring family farmers to collect, store and process cotton, tobacco and maize in Malema, Ribaue and Cuamba. There are no large size plantations and live stock farms in the region.

- Excluding the above cultivated areas, large areas are used for extensive and subversive activities such as slush-and–burn cultivation or for hunting of wild animals
- Because of the predominant family farmers, who rely of man power rather than using trucks, power cultivator, domestic animals, the productivity is very low. This is aggravated because of not using fertilizer and chemicals for production. On the other positive side, there is no environmental pollution and contamination of soils, water and food,
- As pointed out before, the facilities in the rural centers are not effectively used. Some buildings are empty, and the majority of the people live in the periphery of the rural centers. The population in the rural centers such as Malema and Ribaue lack any amenity. The improvement and fulfillment of peoples necessities such as health, education, culture, commerce, amusement will be essential to improve if such places are to perform as centers of economy and people's life in the rural area.
- The majority of the factories and storages in Nampula City, as mentioned before, are located in the vicinity of the railway station and along the streets with high traffic volumes. This causes traffic congestion in the city. The land use planning of the city should be reconsidered, including the planning for transportation and industrial development of the city.

4) Major Resources

- There is vast arable land. Known as the grain-belt or food storage of Mozambique, the triangle area, composed of the southern part of Niassa Province, the northern part of Zambezia Province and the western part of Nampula Province is rich in agricultural production. The annual rainfall is more than 1,000 m/m, the major rivers never dry up and the soil is suitable for cultivation. In addition to the natural richness, a large number of farmers are already engaged in land cultivation. Essentially, the potential for agricultural development is very high.
- Still vast areas of land are not occupied by family farmers. The region has a potential for revitalization of livestock farming and plantations that once flourished during the Portuguese colonial era.

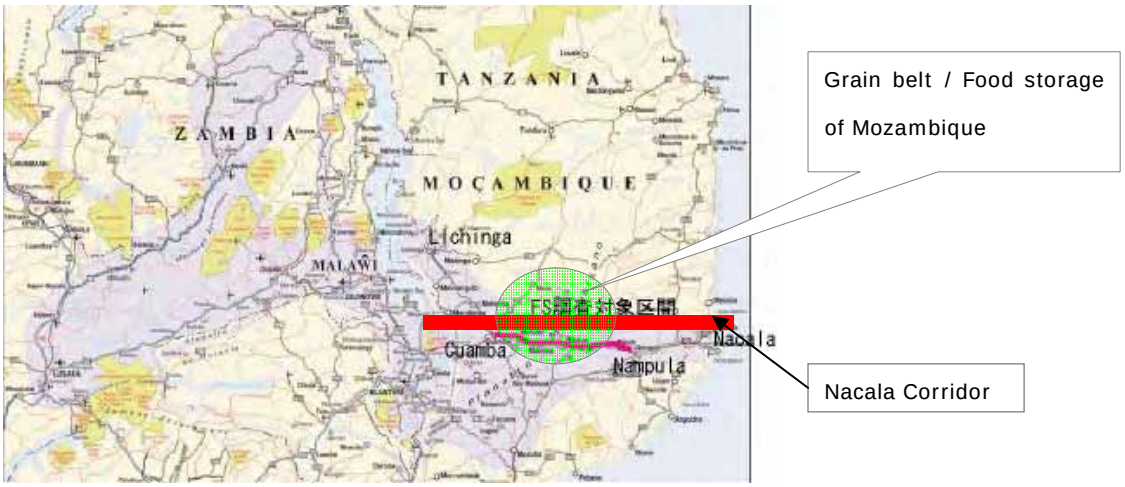


Figure 2.3.2 Grain Belt/Food Storage of Mozambique

- There are many unique 'boulder' mountains in the region. The sequential and picturesque landscape can be enjoyed along the project road. There are prehistoric rock paintings in the area. These are potential tourist attractions, but road and other infrastructure to theses places need to improved. There are plenty of beautiful virgin beaches along the coastal area, especially in Moma, Angoche and the Nacala area. Some beach resort facilities in Nacala already opened. Such resort facilities are also available at Lake Niassa . The potential for tourism development of the region is high and there is a possibility to develop a "Nacala Tourism Corridor" with the attractions of Lake Niassa, the interior Landscape and the beaches. Malawi and Zambia, as landlocked countries, have no access to beaches in their countries. These will be potential new customers for the beach resorts in Mozambique.

5) Transportation and Mobility

- The major flow of goods in the region is composed of 1) goods of regional origin, goods exported from and imported through the Nacala Port, and international goods between Malawi and Mozambique. The goods of regional origin, produced in the interior (maize, tobacco, cashew nuts, cotton, potato, timber, pork, beans and vegetables) are transported to the coastal areas and some are exported through the Nacala Port. On the other hand, the goods produced in the coastal areas, such as rice, fish and marine products, cement, salt, maize flour, beef, are transported to the interior and some are exported to Malawi. From Malawi, tea and tobacco products are imported and some are exported through the Nacala Port. The

industrial goods, rice, sugar, maize flour are imported from Nacala Port and distributed to the region and Malawi.

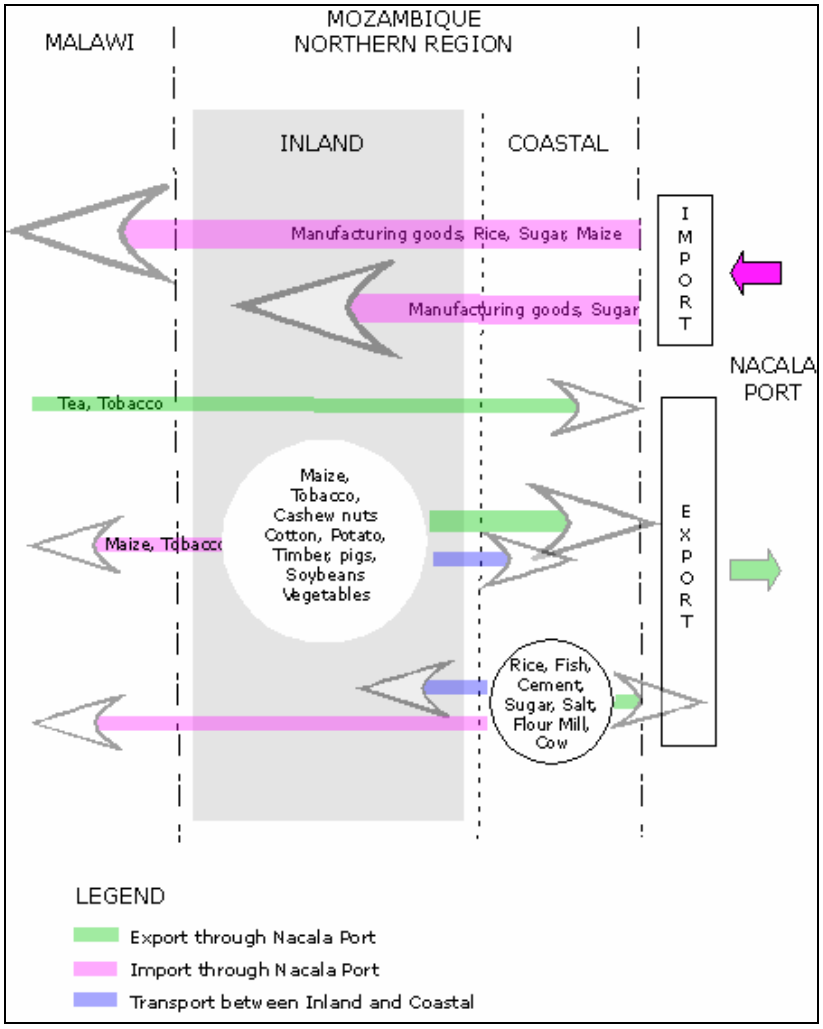


Figure 2.3.3 Major Flows of Agricultural and Other Products

- At present, Railway and road are the major forms of transportation in the region. The study road connecting Malawi, agricultural hinterland areas with Nampula City and Nacala Port takes up the main flow of the goods in the region. Up to present, because the road between Ribaue and Malame becoming impassable during the rainy season, the function of the railway line is important for both transportation of goods and passengers. However, as was the case with railway line between Nampula and Nacala (where passengers transport service was abolished after the improvement of the road between Nampula and Nacala), once the study road will be improved, the demand for the transportation of goods and passengers is expected to make a shift from railway to road. Road transport is quicker and often more efficient from a door-to-door perspective. The improved study road

will contribute to a smooth transportation of goods, for instance, fresh fish and marine products from the coastal zone to the inland areas, and fresh vegetables from the inland zone to coastal areas. The flow of international goods to and from Malawi (7 millions people live in southern Malawi) will also increase by the project. Nacala Port has a larger capacity than Beira Port and the distance between the southern region of Malawi and Nacala Port is also shorter.

- The long-distance bus service by private companies is available from Nampula to Quelimane and Beira (2 trips per week) and also private transportation services using pick-up, truck, mini-bus, etc. from Nampula to Cuamba, Nacala, Pemba, etc. are available. The mini-bus and taxi are the main forms of public transportation for residents of Nampula City. Public bus services connecting Nampula and the neighboring rural centers of Rapale, Namaita, Nametil and Anchilo started to operate as government services. However, these services are now dominated by the private sector.
- For the majority of the people in the rural areas walking is the predominant and only affordable means of transport to markets, workplaces, health facilities and schools. However, more recently, the number of people using bicycles is rapidly increasing. The price of the bicycle becomes within reach of the rural people, and the bicycle is very useful for the transport of heavy and bulky agricultural products, such as charcoal, cassava, etc. They gain income by selling those products at distant markets. The bicycle is also useful for transporting potable water and to go to health facilities in the case of an emergency. It is assumed that more people will start using bicycles in the near future. The expectation to purchase motor cycles also seems high. According to the JICA survey, the use of motorcycles is gradually increasing in the rural area. However, purchase costs and prices for fuel are still very high for the rural people. Therefore, the extended use of the motorcycle will still take time.
- People's mobility, especially in the rural areas, is at a very low level. The increase of the mobility in the rural area, i.e. how the transportation of goods and passengers from all parts of the region to the regional center can be faster and more efficiently, will be a prerequisite for regional development.
- The number of vehicles in the region is increasing from 7,571 cars in 2001 to 12,009 cars in 2002 in (Nampula Province). This is a 58% increase over a years time. With the increase of vehicles and the improvement of the roads, the number of traffic accidents per day also increased. Table 2.3.5 below shows the number of traffic accidents on the road between Nampula-Nacala and Nampula-Cuamba for the period 2002 - 2005. It is quite obvious that the number of traffic accidents has rapidly increased after the improvement of the road between Nampula-Nacala in

2003. (21 cases in 2002 and 81 cases in 2003). On the other hand, the number of accidents on the road between Nampula-Malema (the road length is longer) has not changed much if compared with the data for the Nampula-Nacala. The increase of traffic accidents is a negative impact caused by the road improvement project. Measures to mitigate traffic accidents will be an important issue for the study project.

Table 2.3.5 Number of Traffic Accidents of the Region

Road (section)	Year	2002	2003	2004	2005
Nampula-Nacala	Cases	21	81	34	27
	Dead	23	33	15	17
Nampula-Malema	Cases	8	14	25	10
	Dead	1	1	13	3

Source; Police Department in the Provincial Government of Nampula

6) Basic Infrastructure Service

a) Health, Medical, HIV/AIDS

- Table 2.3.6 shows an assumed development standard of the medical facilities. Many of medical facilities in the rural area have problems with respect to number of available doctors, beds, equipment, etc. They can not carry out operations in the night and are not able to conserve vaccines. The necessary improvement to solve this situation is expected. For most of the major medical facilities that are located near the study road, accessibility to the health and medical services is poor. (See also the Interview Survey). Data shows that only 36% of the population can reach health facilities within 30 minutes (national average). The situation of the northern region is supposedly worse. The improvement and development of the medical facilities, especially in the rural area, is one of the key issues in the PARPA-II.

Table 2.3.6 Assumed Development Standard of Medical Facilities

	Province（Capital city）	Sub-region（3～4 districts）	District (District center)	Post Administration
Type of Medical Facilities	General Hospital, Urban Hospital	Rural Hospital（per 500,000 population）	Health Post-I（per 150,000 population）	Health Post-II（per 50,000 pop.）and Clinic (per 10,000 pop.）

*Remarks; There are beds up to the Health Post-II

- The number of the population living with HIV/AIDS in Nampula Province is 350,000, which is in the worst figure after Zambezia and Sofala Provinces. The infection rate of HIV/AIDS in Ribaue and Malema is 14.0% (2004), which is the

highest in the province. One of the explanations is the influx of migrant workers for the construction work of the northern railway in 1993-1995. Since the increase in HIV/AIDS prevalence a negative impact of the road improvement, measures for mitigatation will be important issue for the study project.

- Many programs and activities to combat the spread of HIV/AIDS are on-going, initiated by the GoM, donors and NGOs. Preventive measures including implementation of special programs for education, public relation, and awareness campaigns along with the road construction project will be important.
- Malaria is the main cause of death, and the number of cases is increasing recently. The number of persons with Malaria in Nampula Province is 950,000. The death toll of Malaria was 900 in 2006. Diarrhea is also a common disease, and a major cause of death. More than 90,000 people have Diarrhea and in 2006 more than 150 persons died of it. It is needless to say that appropriate preventive measures and treatment at the medical facilities are necessary.
- The health condition, especially those of children, is very critical at present. For instance, the number of children having a sufficient intake of vitamin A is only 45% in Nampula Province, which is the worst in the region. The infant (0-5 years old) death rate is 22%, which is the worst in the region next to the Cabo Delgado Province. The rate of the children suffering from chronic malnutrition is 58% in the rural area.
- From these observations and findings, the need for improvement of medical facilities and services is very high. It is urgent to improve the health condition of the people, especially those living in the rural area.

b) Education, School

- Table 2.3.7 shows an assumed development standard of the school facilities. In general, there are 3 shifts in the primary school. School children have lessons for only 2 to 3 hours a day, due to lack of schools and teachers. The majority of the school buildings is made off clay walls and grass roofs with no equipments. It is obvious, that this is not a suitable learning place. The maximum distance to primary school was 8 km, according to the Interview Survey of residents living along Nacala Corridor. The majority of the interviewees in this study lived near the road. Needless to say that the distance to school in the interior is much worse.
- According to the interview with an official from the Nampula Provincial Directorate of Education and Culture, the enrollment rate in Nampula Province is surely lower than the national average, although no data exist, According to the officials, parents of the school age children have no experience of school education themselves, and they do not know the importance of education.

Furthermore some parents do not know the existence of a school. The obligation of education must be known to everyone and improvement and development of the schools is urgently required for all school children.

- A junior secondary school is available in each district. There are only 5 senior secondary schools in Nampula Province. It is expected that each sub-region (3-4 regions) has one senior secondary school.

Table 2.3.7 Assumed Development Standard of School Facilities

	Province（Capital city）	Sub-region（3～4 districts）	District (District center)	Post Administration
Type of Schools	Technical, Vocational and Higher Schools	ESG-II （ per 500,000 population）	ESG-I （ per 150,000 population）	EP-II（per 20,000 pop.） EP-I （per 1,500 pop.）

Remarks; EP –II (Complete primary school, EP-I (Primary school only low grade), ESG-II (Junior secondary school)

c) Water Supply

- The number of water points (wells and traditional boreholes) in the rural area of Nampula Province is about 2,000 units. About 1,200 units of those are operational, the others are broken and out of use. Some 690 families (or 3,500 persons) have to share a water point. According to the Interview Survey of Residents along the Nacala Corridor, the maximum distance from each house to the nearest water point is 10km. Since this question related to any water sourc (wells, traditional boreholes, springs, rivers, ponds), the distance to a hygienic water source will be much further. Data from CARE International tells that 22% of the children in Nampula Province had Diarrhea in the 2 weeks before the Survey.. This is the worst in the country.
- The ASUNANI Project, which aims to construct 4,000 water points in Nampula and Niassa Provinces, is on-going with the assistance of ADB,. The project attempts a demand driven approach and has the goal to make 1 well available for every 500 persons (or 1 well for every 500 m radius). However, the progress of project implementation is not on schedule. The ground water level is very low in some areas and organizing communities to maintain the wells is not going smoothly.
- In general, carrying water is a duty of women and children. It is hard work and takes a lot of time. The improvement of water supply in the rural areas is important and urgent in this respect.

Table 2.3.8 Accessibility to Basic Infrastructure

	Maximum	Minimum	Average
Primary School	8 km/1:30 hr	100m/1 sec	1,580 m/17 min
Secondary School*1)	40 km/6 hr	500m/5 min	10,950 m/53 min
Adjacent Medical Facility	15 km/2;30 hr	50m/2 min	3,490 m/34 min
Village Market	11 km/6 hr	50m/1 min	1,700 m/14 min
District Market	40 km/8 hr	50m/1 min	9,320 m/52 min
Farm*2)	25 km/4 hr	50m/1 min	6,070 m/64 min
Water Point	10 km/4 hr	10m/1 min	n.a.

*1) Results by hearing both time and distant。*2) Some secondary school has a dormitory.

*3) Some farmers have a simple house at distant farms

Source; The Interview Survey to the Residents along the Nacala Corridor, by JICA Study Team

- Figure 2.3.4 represents a local development module to show the assumed development standard and hierarchy at the administrative level of the region.

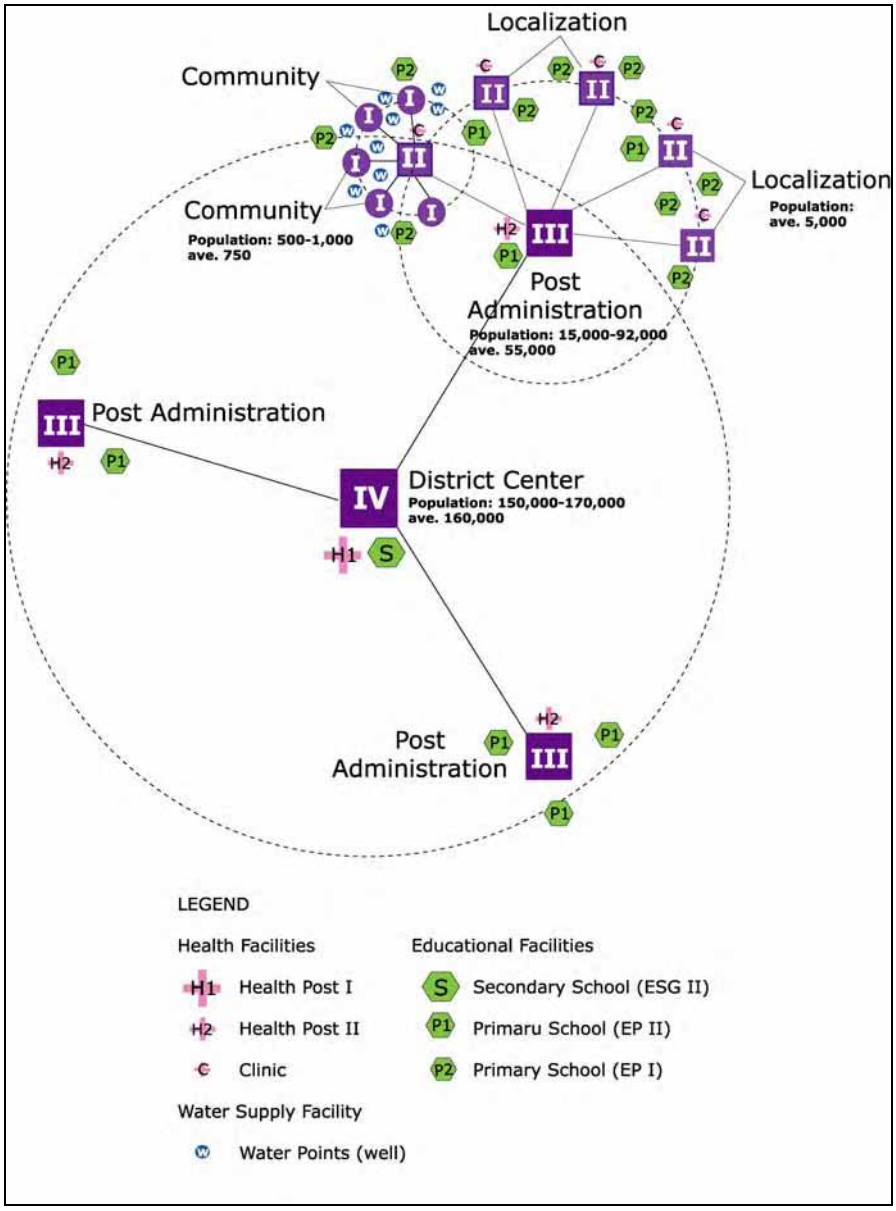


Figure 2.3.4 Regional Development Module

2.4 SWOT Analysis and Development Issues

Figure 2.4.1 shows a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis representing the 4 Factors of Predominance, Problems, Current Circumstances and Future Prospects. The development strategies of the region are examined based on the SWOT analysis as shown in the figure below.

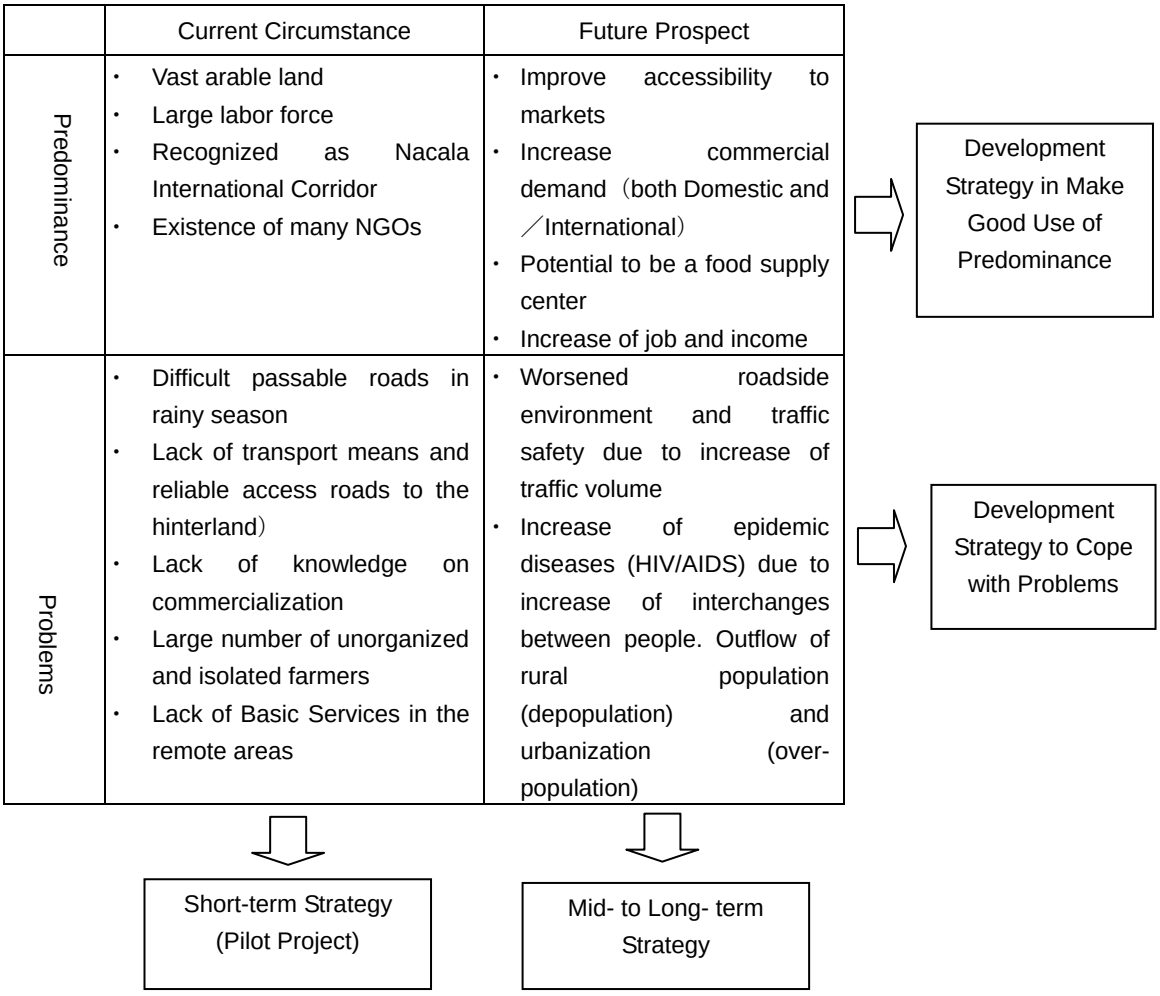


Figure 2.4.1 SWOT Analysis

Chapter 3 Formulation of Regional Development Program

Chapter 3 Formulation of Regional Development Program

3.1 Socio-Economic Framework

3.1.1 Population

According to the forecast by INE, the population of the study region was 936,973 in 1997, and the population in 2010 is expected to be 1,355,740 with an annual average increase ratio of 2.9%, while the total population in the provinces of Nampula and Niassa in 2010 is respectively estimated at 4,093,025 with a growth rate of 2.3% and 1,138,144 with a growth rate of 2.7% as shown in the Figure 3.1.1 and 3.1.2.

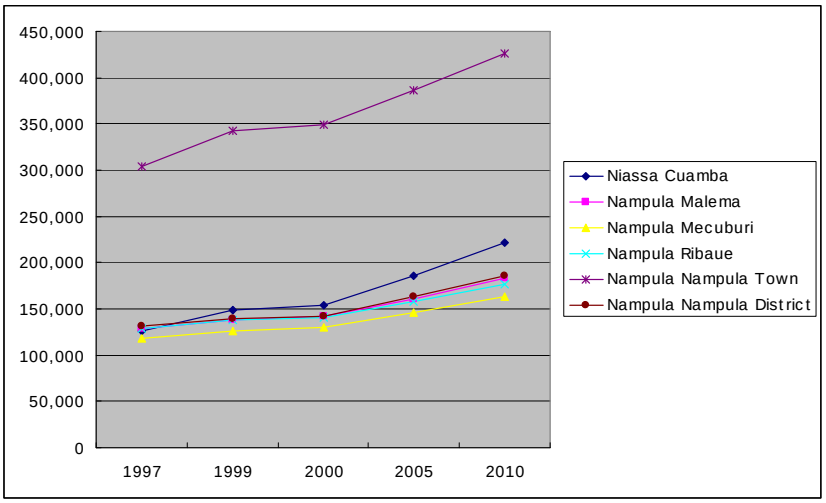


Figure 3.1.1 Population Projection of the Study Region

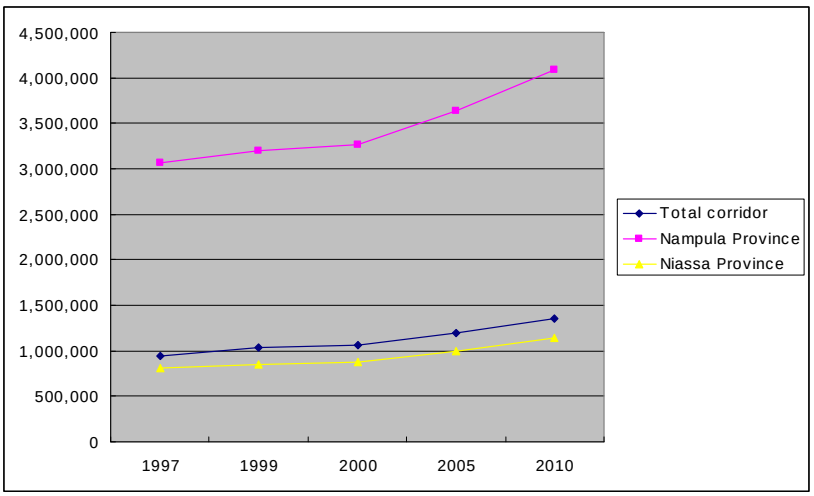


Figure 3.1.2 Population Projection of Nampula and Niassa Provinces

3.1.2 GDP

IMF evaluates that the macroeconomic performance of Mozambique remains strong despite exogenous shocks. Real GDP growth is expected to have picked up but agricultural production and the livelihoods of certain groups remain vulnerable to bad weather warranting targeted actions. Despite the spike in domestic petroleum prices, the annual average inflation rate decelerated in 2005, albeit rising recently. Higher cereal imports and the oil price shock widened the trade deficit contributing to depreciation pressures, particularly the financing of lumpy oil import payments and consequent portfolio shifts in a thin market. The outlook for 2010 is a continuation of rigid growth, a containment of inflationary pressures, and the maintenance of a comfortable external position, albeit with some risks related to exogenous shocks as shown in the following Figure 3.1.3.

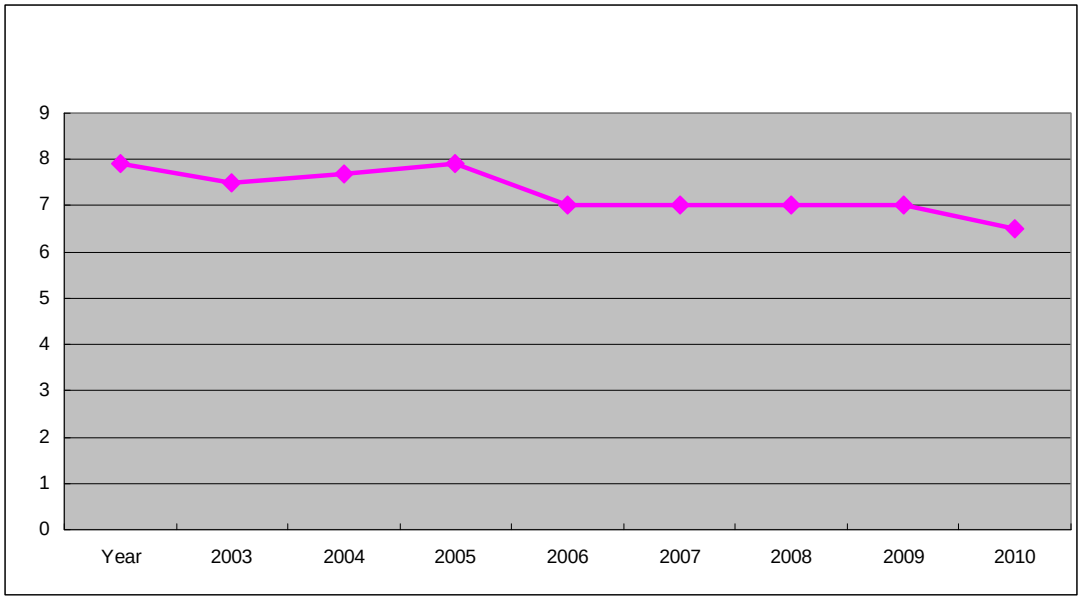


Figure 3.1.3 Real GDP Growth (%/year) Source: IMF

3.1.3 MDGs and PARPA II

It is reported that the "Action Plan for the Reduction of Absolute Poverty (PARPA II)" for 2006–09 that will soon be submitted to the World Bank and IMF by the GoM includes the launching of a "second wave of reforms." As a result, donor support is expected to remain strong.

This "second wave of reforms" is to sustain a broad-based growth and help achieve the

Millennium Development Goals (MDGs.) This involves a two-pronged strategy to (i) consolidate macroeconomic stability through a gradual strengthening of the fiscal position to increase credit to the private sector and maintain a competitive exchange rate while monetary restraint helps anchor inflationary expectations, and (ii) institutional reforms and good governance to buttress the investment climate and ease the constraints on growth.

A strengthening in transparency of natural resource management and mega projects will also be critical by adhering to the principles of the Extractive Industries Transparency Initiative (EITI), particularly at a time when an expansion of aluminum, coal, hydroelectric power, natural gas, gold, titanium, and oil production is on the cards. While Mozambique is on track to meet the MDGs on income poverty, infant and maternal mortality, and access to safe drinking water, particularly in urban areas, other areas such as primary school enrollment, gender equality, and HIV/AIDS call for an efficient service delivery and a more flexible approach to the use of additional donor support as long as it does not compromise macroeconomic stability.

The medium-term macroeconomic framework is designed to help maintain growth at about 7 percent along a gradual disinflation path over the medium term. On the basis of the current external financing envelope, the domestic primary deficit is projected to decline gradually underpinned by an average increase in revenue of 0.5 percent of GDP per annum supporting a narrowing of the current account deficit, excluding grants over the medium term.

However, if a scaling-up of external assistance materializes it will be used to finance additional “priority” spending with due regard to absorptive capacity and debt sustainability. To facilitate such a flexible approach, the government intends to cost programs that will help achieve the MDGs with the help of the donors and include contingent expenditures in the medium-term financial framework (MTFF) in a scenario-type approach which then could be executed in the event of higher aid inflows. A flexible exchange rate system is expected to cushion against exogenous shocks and help maintain a comfortable level of international reserves.

The current situation concerning the MDGs in the country is shown in Table 3.1.1.

Table 3.1.1.MDGs Mozambique Country Profile

		1990	1995	2001	2002	2003
1	Eradicate extreme poverty and hunger	*2015 target = halve 1990 $1 a day poverty and malnutrition*				
	Population below $1 a day (%)	..	..	..	..	..
	Poverty gap at $1 a day (%)	..	..	..	..	..
	Percentage share of income or consumption held by poorest	..	..	..	..	..
	Prevalence of child malnutrition (% of children under 5)	..	27	..	..	..
	Population below minimum level of dietary energy consumpt	..	..	..	47	..
2	Achieve universal primary education	*2015 target = net enrollment to 100*				
	Net primary enrollment ratio (% of relevant age group)	44.7	..	59.7	55.3	..
	Percentage of cohort reaching grade 5 (%)	32.7	..	49.2	..	..
	Youth literacy rate (% ages 15-24)	..	..	..	62.8	..
3	Promote gender equality	*= education ratio to 100*				
	Ratio of girls to boys in primary and secondary education (%	73	..	77.3	79	..
	Ratio of young literate females to males (% ages 15-24)	..	..	..	64.3	..
	Share of women employed in the nonagricultural sector (%)	11.4	..	..	..	..
	Proportion of seats held by women in national parliament (%	16	..	30	30	30
4	Reduce child mortality	*990 under 5 mortality by two-thirds*				
	Under 5 mortality rate (per 1,000)	242	206	..	..	147
	Infant mortality rate (per 1,000 live births)	146	129	..	..	101
	Immunization, measles (% of children under 12 months)	59	71	74	77	77
5	Improve maternal health	*0 maternal mortality by three-fourths*				
	Maternal mortality ratio (modeled estimate, per 100,000 live	..	..	..	..	..
	Births attended by skilled health staff (% of total)	..	..	..	..	48
6	Combat HIV/AIDS, malaria and other diseases	*nd begin to reverse, AIDS, etc.*				
	Prevalence of HIV, female (% ages 15-24)	..	..	14.7	..	..
	Contraceptive prevalence rate (% of women ages 15-49)	..	..	..	..	17
	Number of children orphaned by HIV/AIDS	..	..	) thousand	..	) thousand
	Incidence of tuberculosis (per 100,000 people)	158.4	286.5	416.2	436.4	456.6
	Tuberculosis cases detected (%)	..	55.6	44.4	45.3	45.1
7	Ensure environmental sustainability	*t = various (see notes)*				
	Forest area (% of total land area)	39.8	..	..	..	..
	Nationally protected areas (% of total land area)	..	..	..	..	8.4
	GDP per unit of energy use ($ per kg oil equivalent)	1	1.5	2.4	2.4	..
	CO2 emissions (metric tons per capita)	0.1	0.1	..	..	..
	Access to an improved water source (% of population)	..	..	..	42	..
	Access to improved sanitation (% of population)	..	..	..	27	..
	Access to secure tenure (% of population)	..	..	..	..	..
8	Develop a Global Partnership for Development	*t = various (see notes)*				
	Youth unemployment rate (% of total labor force ages 15-24	..	..	..	..	..
	Fixed line and mobile telephones (per 1,000 people)	3.4	4	13.7	18.6	..
	Personal computers (per 1,000 people)	..	..	4	4.5	..
	General indicators					
	Population	4.2 million	5.8 million	8.1 million	8.4 million	8.8 million
	Gross national income ($)	2.3 billion	2.2 billion	3.6 billion	3.6 billion	3.9 billion
	GNI per capita ($)	170	140	200	200	210
	Adult literacy rate (% of people ages 15 and over)	..	..	..	46.5	..
	Total fertility rate (births per woman)	6.3	5.6	..	5	5
	Life expectancy at birth (years)	43.4	..	..	41.1	40.7
	Aid (% of GNI)	43.2	49.9	29.8	60.3	25
	External debt (% of GNI)	200.4	349.7	145.8	139.9	119.4
	Investment (% of GDP)	22.1	29.6	24.6	25	26.9
	Trade (% of GDP)	44.2	55.1	57.2	61.7	62.1

Source: *World Development Indicators database, April 2004*

3.2 Target Setting of the Region

- The vast area extending along the study road and plenty of population in the hinterland are the biggest potential for agricultural development of the region. Utilization of this potential is the basic policy for the socio-economic development

of the region. Accordingly, for the promotion of agricultural development (not only to the area adjacent of the road, but also involving vast area of the hinterland) the establishment of producers associations and extension services, improvement of irrigation systems, diversification, commercialization, development of pilot farms, etc. should be accelerated to increase productivity and income, and to upgrade the standards of living for the rural population as a whole. The long-term goal will be to explore the regions full potential as the "Grain Belt or Food Storage of Mozambique"

- The rural centers (district center and administrative posts) and regional centers (such as the cities of Nampula and Nacala) are defined as the strategic development areas for the overall regional development. These areas are the regional poles both from an economic and social point of view. To perform this function, these rural centers should have capacity for the collection, storing and processing of the agricultural products. They should also have the necessary social and commercial services (administration, culture, education, health, sports, amusement, etc) to satisfy the demand of the rural population in the vast hinterland. Enhancing the mobility through improvement of access roads and transportation is also important for transporting local products from the production areas to the rural, regional national and international markets. On the medium and long term perspective, the existing markets, storages and processing factories in the regional centers of Nampula and Nacala should be improved to increase the capacity and productivity to handle the products originating from all parts of the region.

- Adequate measures are required for the prevention and mitigation of the environmental deteriorations (both natural and social aspects). Especially measures to mitigate traffic accidents and the spread of HIV/AIDS are critical and important development issues, because these are directly influenced by the development of the road.

- The development level of basic services, such as health, education, water supply, in the region is far behind the national average. PARPA stresses the importance of the equitable development of such services, especially in the rural areas. Upgrading of these infrastructures is important for the study area including the hinterland to provide appropriate better services to its people.

- On the medium and long term, the international transport from/to Malawi and Zambia is expected to increase by the improvement of the study road. The same is valid for the domestic transport. The region aims to grow towards an important international development corridor in the southern region of Africa, through investments for agricultural and industrial development. And finally, the regional development aims to reduce poverty, which is the ultimate goal of PARPA.

3.3 Regional Development Policies

For the realization of the aforementioned development targets, 3 pillars of regional development policies are proposed:

1) Agricultural Development
2) Improvement of Strategic Areas
3) Upgrading of Basic Services

The development policies for each development period are listed in Table 3.3.1.

Table 3.3.1 Development Policies of the Region by Period

	Area Involved	Agriculture Development	Strategic Area Development	Improvement of basic Services
Short -term	A half of the 5 districts and 1 city （30km both sides from the project road）	Organizing family farmers into Group (target 20%) and various development programs to promote agricultural development	Development of rural centers, Improvement of mobility and Preventive measures for the negative impacts caused by road development	Medical, Education, Water Supply
Medium -term	All of the 5 districts and 1 city and Nacala Corridor in a narrow sense	Organizing family farmers into Group (target 30%) and various development programs to promote agricultural development	Development of the regional centers of Nampula and Nacala and continuous development of the rural centers	Medical, Education, Water Supply , Electricity
Long -term	Nacala Corridor in a broad sense	Organizing family farmers into Group (target 50%) and various development programs to promote agricultural development	Development of agro-industrial and distribution centers in the cities of Nampula and Nacala, Invite private investment for stock raising and plantation, Integrated transportation development of road, railway, airport and shipping	Medical, Education, Water Supply, Electricity, Improvement of living environment

3.3.1 Short-term Development Policies

Area Involved: half of the area along the study road: Nampula city and Nampula, Mecuburi, Ribaue, Malama and Cuamba districts (30 km from the study road on both sides)

Description: After the completion of the improvement of the study road, the accessibility between each district to Nampula will be largely improved. The agricultural products produced in each district can be transported quickly to the markets and processing factories in Nampula and Nacala. Until the completion of the study road, the functions of collection, temporary storing, initial processing and selling of the local products should be strengthened. The access from the hinterland to the study road and the rural centers should be improved for the convenient and efficient transport of their products. This should be achieved through the rehabilitation of feeder roads and bridges, increased use of bicycles, and expansion and improvement of the public transport services in the area of 30 km on each side of the study road. (targeting 62.8% of the rural population in the study area)

For the increase of productivity and income of the farmers in the hinterland, the organization of the farmers into producers associations should be promoted. The target for the organization of producers associations will be set at 20% (25,000 farmer's households organized in about 830 groups of producers associations), against the present condition of less than 10%.

Along with the promotion of producers associations, the following areas require improvement:

- extension services for transfer of production technology;
- irrigation systems,
- collaboration in production, handling and selling of produce,
- links with the private sector,
- agricultural modernization (farm machinery and implements) through micro finance services.

At the same time, the basic services for health, education and water supply in the hinterland should be improved for creating the basic minimum living environment for the people. For the implementation of such programs, human and organizational resources in the region should be fully utilized. This approach involves NGOs, private

sector (especially in the fields of organizing producers associations, agricultural development and improvement of the rural centers) and promotes community participation in the regional development process.

1) Agricultural Development

- Organization and transformation of family farming into small scale commercial farming (for promotion of commercialization, marketing, transportation, management, investment, financing, enterprising, etc.).
- The target is to increase the number of farmers who are member of a producers associations from the current than 10% at present to 20% in 2013, targeting an additional 25,000 farmer's households or about 830 groups
- Diversification of agriculture through introducing the concept of conservation, small-scale livestock farming, providing labor force, etc.
- Expansion of extensive extension services, including training of extension specialists, research, development and application of appropriate technology, promotion of demonstration and/or pilot farms.
- Improvement of production facilities, including the improvement of irrigation systems, adjustment of farm lands and farm road improvements, and development of seed and seedling supply centers.
- Management of natural resources for sustainable land use, including conservation of protected areas, introduction of community managed forest and reforestation projects, transformation of slash-burn methods into sustainable land use, etc.

2) Improvement of Rural Centers

- Improvement of the rural center's functions
- Improvement of mobility and accessibility through improvement of feeder roads and bridges connection the hinterland to the study road
- Improvement of Transportation Means (Bicycles, trailers, carriers, etc).
- Preventive measures for the negative impacts of road projects (Traffic safety, HIV/AIDS）

3) Upgrading of Basic Services

a) Improvement of Health Facilities

	New	Repair of the existing ones	Total
Health Post-I	1	1	2
Health Post-II	3	4	7
Clinic	14	10	24
Total	18	15	33

b) Improvement of Education Facilities

	New	Repair of existing one	Total
Junior Secondary School	4	0	4
Primary school (EP-II)	13	8	21
Primary school (EP-I)	36	146	182
Total	53	154	207

c) Improvement of Water Supply (Water Points)

	New wells	Repair of existing ones	Total
Wells	214	45	259

* For population living in the area 30 km on each side of the study road (1 well for each 1,500 persons).

* 20% of the existing wells will be required repairing in the short-term period.

1) Located in the centre of an Administrative Post. Population is 50,000 in the area along the study road
2) Located along a National Road or a Regional Trunk Road (Primary or Secondary roads), is a center of commerce, administration and public services, is a hub for the distribution of agricultural products and also a centre of leisure for rural people. Therefore, the central functions from both an economic and social perspective should be fulfilled by a Rural Center.
3) The basic facilities to be fulfilled by a Rural Center are as follows;
   a) Government administration and services offices, Police station, Post office, Small library, Community center, Public telephone booth, Antenna for mobile phone, Transformer substation, Power generator, Public toilet, Public parking,

Small-scale water supply system, Public Parks, GATV and other service offices (including Donor and NGO field office)

b) Market, Storage (for Maize, Cassava, Cotton, Tobacco, Sesame, Peanuts, Vegetable, etc.), Processing Factory (for Maize, Cassava, etc.), and Transportation Facilities
c) Schools (Junior secondary school at the District Center, 1 Primary school: 1 EP-II for 20,000 population, 1 Primary school: 1 EP-I for 1,500 population)
d) Medical Facilities (Health Post-I at the District center, 1 Health post-IIat the Administrative Posts, and 1 Clinic for 1,000 residents)
e) Retail shops, Bar and restaurants, Hotel accommodation, amusement facilities, workshop (repair shop), Microfinance service office, etc.

Note: the proposed Michinoeki provides these multi- services, (including market, shops, public toilet, parking, open space, etc).

Figure 3.3.1 shows an outline sketch of the short-term regional development strategy, and Figure 3.3.2 shows the image map of the improvement of the rural centers and basic services.

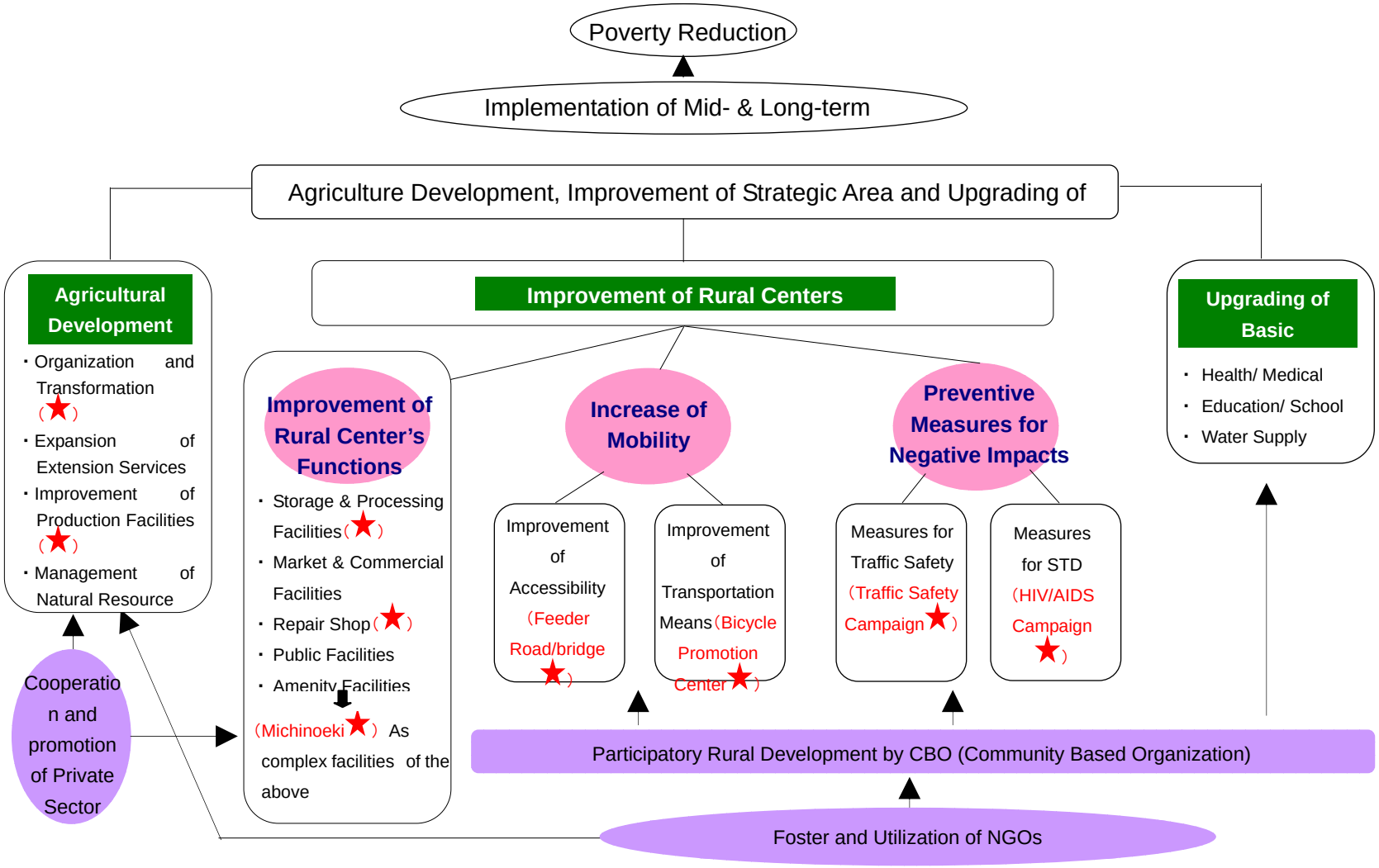


Figure 3.3.1 Short-term Development Program （★）Pilot Project

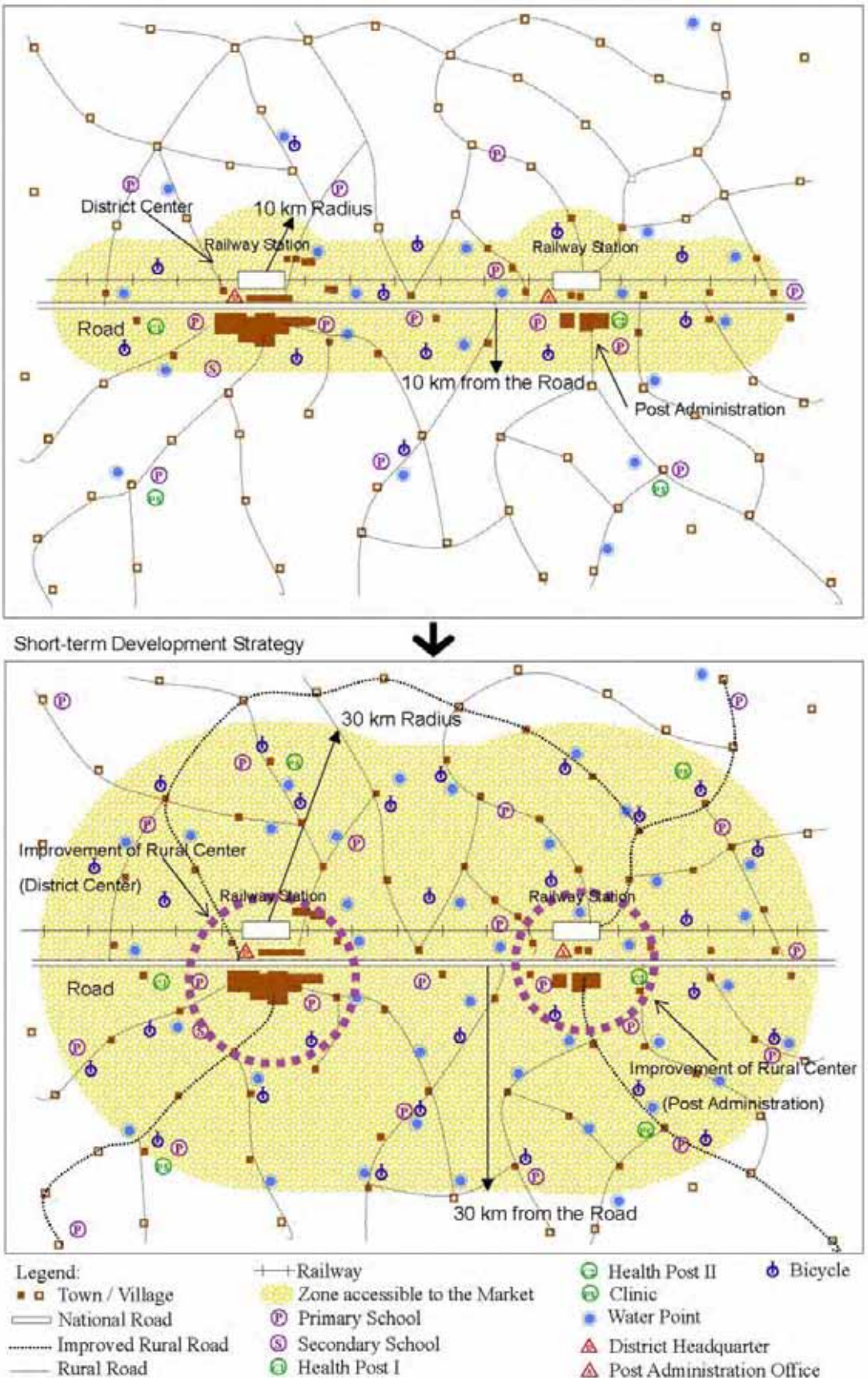


Figure 3.3.2 Image Map of the Short-term Development Program

3.3.2 Mid-term Development Policies

Area Involved: area along the study road: Nampula city and Nampula, Mecuburi, Ribaue, Malama and Cuamba districts and extension of the short-term development programs to the area along the Nampula- Nacala road and Cuamba- Mandimba road.

Descriptions: Once the construction works of the study road and the road between Cuamba- Mandimba are finished at the end of the short-term period, the Nacala Road Corridor connecting the Malawi border to Nacala Port is completely improved. Some of the other regional trunk roads which are nominated for improvement in the existing road development plans, will be completed as well. Consequently the mobility of people in the northern region is much improved. Major cities, like Lichinga, and other rural centers in the 3 provinces will be connected to the paved road network.

In the medium term, the regional development program aims to bring aboard areas along the study road and also areas along the Nacala Corridor from Mandimba to Nacala. Development projects include the improvement of feeder roads (tertiary and vicinil roads) and improvement of transportation means (including the promotion of bicycles and motorbikes). Through these activities, a wider group of people can benefit. The development target for the number of farmers organized in groups (establishment of producers associations) in the area along the study road is set 30% against the short-term target of 20%.

Another key target of the development program set for the medium term period is the development of the cities of Nampula and Nacala as the regional centers. The development, expansion and modernization of the existing markets, storages and processing factories should be promoted to cope with the increased supply of agricultural products originating from the rural area. The volume of goods transported from/to Malawi and Zambia is expected to increase, which requires the revitalization of the Nacala Port and Northern Railway line.

At the same time, commercial and other service facilities (including Roadside Station) the should be development to satisfy the increasing demand of road users

1) Agricultural Development

- Continuing effort for the organization and transformation of family farming to small scale commercial farming (for promotion of commercialization, marketing,

transportation, management, investment, financing, enterprising, etc.).

- The medium-term target of increasing producers associations is set at 30% in 2018, involving 25,000 additional farmer's households and about 830 groups
- Continuation of the implementation of the short-term program activities such as;
  - Diversification of agriculture system
  - Expansion of extensive services
  - Improvement of production facilities
  - Management of natural resources for sustainable land use,

2) Improvement of Rural and Regional Centers

- Improvement of rural centers, improving mobility in the area along the study road
- Development of the Nampula and Nacala as Regional Centers of the Region (Markets, storages, processing factories, etc.
- Development of the strategic areas in the area along the road between Cuamba-Mandinba and Nampula- Nacala.
- Continuous efforts on preventive measures to mitigate the negative impacts of road improvement (Traffic Accidents, HIV/AIDS)
- Development of Commercial and Service Facilities including a Roadside Station and Tourism and Recreational Facilities along the Nacala Corridor.

3) Upgrading of Basic Services

- Improvement of Health Facilities
- Improvement of Education Facilities
- Improvement of Water Supply Facilities
- Improvement of Electricity Facilities

3.3.3 Long-term Development Policies

Area Involved: Nampula, Niassa, and Cabo Delgado Provinces and the northern part of Zambezia Province.

Descriptions: The development efforts along the Nacala Corridor in the short- and medium term period, should be gradually expanded to the all of the northern region including the northern part of Zambezia Province. As most of the planned road improvements will have been realized at the start of this period, the development policies and programs applied along the study road (as mentioned under the short- and medium term program) will be implemented in other parts of the region. The development target for organization of

groups (establishment of producers associations) in the area along the study road is set 50% against the mid-term target of 30%.

In this period, an integrated approach for the development of a transportation system for the region will be required, involving road, railway, airports, and ports. The introduction of modal split will be examined in this period such as bus terminals, truck terminals, commuting transit stations, improvement of railway stations, park and rides, cycle and rides, airport cities.

The urbanization (problems of overpopulation, slums, unemployment, etc…) and the outflow of population from the rural area will become critical in the long-term. A comprehensive approach should be adopted to solve these problems.

1) Agricultural Development

- Continuing effort for the organization and transformation of family farming into small scale commercial farming (for promotion of commercialization, marketing, transportation, management, investment, financing, enterprising, etc.).
- The long-term target for increasing the number of farmers being a member of a producers associations is set at 50% in 2025, involving an additional 49,000 farmer's households and about 1,660 groups
- Continuation of the implementation of the short-term policy measures including;
  - Diversification of agriculture system
  - Expansion of extensive services
  - Improvement of production facilities
  - Management of natural resources for sustainable use,
- Inviting investors / developers of large-scale plantations and stock farming

2) Improvement of Rural and Regional Centers

- Development of large scale agro-industrial parks, transportation terminals, and distribution centers of agricultural products in the cities of Nampula and Nacala
- Land use control, job creation, improvement of public services including school and medical facilities, housing, electricity, water supply, and environmental improvement including wastewater and solid waste management systems in the urban areas.
- Job creation, improvement of public services including school and medical facilities, and improvement of living environment in the rural area.
- Development of rural centers and improvement of mobility implemented in the short- and medium term, should be promoted for the whole northern region.

- Development of an integrated transportation system (road, railway, airport and seaport)
- Continuous Development of Commercial and Service Facilities including Roadside Stations and Tourism and Recreational Facilities along the Nacala Corridor and other identified locations.
- Continuous Efforts on Preventive Measures for the Negative Impacts of road improvement (Traffic Accidents, HIV/AIDS)

3) Upgrading of Basic Services

- Improvement of Health/Medical Facilities
- Improvement of Education/School Facilities
- Improvement of Water Supply Facilities
- Improvement of Electricity Facilities
- Improvement of Housing and Living Environment

3.4 Regional Development Program

For the realization of the target and implementation of the development policies, stated above, the regional development program for the short-term period was proposed as shown in Table 3.4.1. As stated before, the many projects and programs are on-going by various government agencies, private sectors, communities, associations, and many of them are supported by the various donors and actuary implemented with the field works by the NGOs. The JICA proposed regional development programs contains the new projects and programs which should be implemented soon and also the already on-going projects and programs, which need further encouragement and/or expansion of projects and programs.

Table 3.4.1 Proposed Short-term Development

Pillars	Strategy	Programs	Activities	Sub-Activities	Implementation Bodies
Agricultural Development	Increase of Productivity (Increase of Income)	● Organization and Transformation of Family Farming to Commercial Farming	● Organization of Producer's Associations (for promotion of commercialization, marketing, transportation, management, investment, financing, enterprising, etc.) ● Diversification (Conservative farming, Livestock, Labor, etc.)	● Seminar and Workshops for Organizing Producer's Association (training of group leaders) to increase and strengthening the organizations. The target of the no. of producers association is 830 groups (25,000 farmers). ● Preparation and Counseling of Annual Activities of Producer's Associations (for cooperative collection, storage, selling, producing, etc) ● Strengthening of Linkages between Providers of Agricultural Input (Seeds, Seedling, Fertilizer, Chemical) Organizations. ● Strengthening the Forum of Producer's Associations at District and Provincial Level ● Improvement of Agricultural Statistics ● Promotion of Chicken Farm, Pig Breeding, Beekeeping, Cattle and Horse Rising, Fish Farm, etc. ● Transaction and Observation of Advanced Farms and Organizations by Farmers ● Diversification (conservative or organic farming, mixed planting, labor supply, etc.)	MADER, Local Government, Farmers, and Private Companies

		● Expansion of Extension Services (Government, Private, Donor/NGO)	● Training of Extension Service Personnel ● Research, Development and Apply of Appropriate Technology	● Improvement of Training Program, Materials, Trainers, Facilities, and Stress on Gender's and Social and Environment Aspects. ● Development of Demonstration and/or Pilot Farms for Research, Development and Extension of Technology ● Investigation of Cultivation Technology, Improvement of Planting Pattern, etc. ● Improvement of Agricultural Schools and Training Program ● Promotion of Introduction of Appropriate Scale of Machines and Motorization on Cultivation ● Promotion of Use of Manures of Cattle for Fertilizer (production of soy beans for feeding cattle) ● Improvement of Seeds and Introduction of Appropriate Seeds ● Securing for Food Security for Region and National by Increase of Stock of Products ● Strengthening among Extension Service, University, Agricultural Schools, NGO, Private Sector for Development of Technology and Increase of Productivity	MADER, MINED, Local Government, Farmers, and Private Companies
		Improvement of Production Facilities	Improvement of Irrigation System	● Small-scale Irrigation (Small dams and irrigation channels, organization of groups for sustainable operation/maintenance)	MADER, Local Government, Farmers
			Adjustment of Farm Lands and Feeder Road Improvement	● Development of Model Farms ● Transfer State Property to Private Concession	MADER, Local Government, Farmers
			Development of Seed and Seedling Supply Center	● Development of Nursery ● Development of Seeds Storage ● Development of Local-made Seeds	MADER, Local Government, Farmers

	Management of Natural Resources for Sustainable Use		● Reopen of Inventory System of the National and Regional Natural Resources ● Conservation of Natural Protection Area ● Introduction of Community Forest and Reforestation ● Transformation of Slash-and-Burn Method of Agriculture into a Modern and an Appropriate Method ● Soil Improvement ● Devices for Flood Mitigation ● Development of Alternative Energy	MADER, MICOA, Local Government, Farmers
Improvement of Rural Centers	Improvement of Rural Center's Functions	● Development of Facilities of Collection, Storage and Transportation of Agricultural Products) ● Improvement / Expansion of Local Market ● Improvement of Processing Factory (for home consumption and market)	● Establishment and Expansion of Rural (Micro) Finance (Revolving Fund) System ● Strengthening of Linkages with Private Sector (agriculture, trader, transport, commercial, agro-industrial, etc.) ● Seminar/workshop for Creating, Starting and Operating Business ● Encouragement of Business Consultation Programs ● Technical Assistance for Development of Commodities (including Design) and Marketing, Sales Promotion of Handicrafts ● Training for Sewing and Tailoring ● Improvement of Market Price Information System ● Improvement of Management of Market and Distribution System of Agricultural Products ● Improvement of Quality Control of Agricultural Products ● Development of Flour Mills and Oil Mills and Technical Training ● Promotion of Joint Sales by Farmer's Associations ● Improvement of Market Facilities (location, size, organization, equipment, etc.) ● Development of Michinoeki ● Securing of Income from Non-agricultural activities	MADER, Ministry of Industry and Commerce, ANE, Local Government, Farmers

	Increase of Mobility	Improvement of Accessibility	● Improvement of Roads and bridges in the rural area	● Improvement of Impassable and Bad Roads ● Improvement of the Roads Connecting All Post Administrations and Capital Cities of the Provinces ● Improvement of Feeder Roads and Small Bridges by Community Participation Program ● Formulation of Regional Road Development Plan ● Development and Building Up of the Operation and Maintenance of the Regional Roads ● Establishment of Statistical Data of Regional Road	ANE, MOPWH, Local Governments, Residents
		Improvement of Transport Means	● Improvement of Transport Services of Public Bus and Private Pick-up	● Improvement of Public Bus Services (Increase of Vehicles and Routes) ● Promotion of Improvement of Private Transport System ● Improvement of Transportation Statistics	Ministry of Transportation and Communication, Local Governments, Private Companies
			● Improvement of Transportation Means of Farmers	● Expansion of Use of Bicycles (Bicycle Promotion Center) ● Development and Expansion of Rear Car and Carrier	ANE, M. Transportation & Communication, Local Governments
	Preventive Measures for Negative Impacts	Measures for Traffic Safety	● Improvement of Road and Transportation Environment ● Raising Consciousness for Traffic Safety ● Ensuring Safety Drive ● Ensuring Safety of Vehicles ● Ensuring Traffic Order ● Improvement of Rescue and Emergency Activities ● Improvement of Traffic Safety at Railroad Crossing	● Improvement of Roads and Pedestrian Paths, Installation of Traffic Signs, Countermeasures of the Locations where Traffic Accidents Often Occurs, Provision of Public Parking, Development of School Paths, etc. ● Provision of Educational Materials and Execution of Campaigns Using Various Media and Public Relations at Schools, Communities, Markets and Other Focal Points ● Education and Guiding for Drivers ● Inspection of Vehicles ● Thorough Control for Traffic Violation ● Popularization and Extension of First-Aids by the People and Systems for Emergent Report Rush to the Scene ● Improvement and Installation of Devices at Railway Crossing	Police, INAV, ANE, Local Governments, Residents

		Measures for STD (incl. HIV/AIDS)	● Preventive HIV/AIDS Infections ● Assist People with HIV/AIDS (incl. Advocacy) ● Reduce Impacts of HIV/AIDS	● Organization of Groups (by region, youth, producers, schools, workplaces, etc.) and Education and Dissemination of Information on Fight Against HIV/AIDS ● Provision of Educational Materials, Condoms and Other Materials and Execution of Campaigns Using Various Media and Public Relations ● Expansion and Improvement of GATV ● Promotion of Treatment for the People with HIV/AIDS at both Health Facilities and at Home ● Provision of Psychological, Medical and Social Care in All Health Centers in District Headquarters	MISAU, Local Governments, Residents

Upgrading of Basic Services	Improvement of Medical Care Service	● Improvement of Medical Facilities (especially Primary Health Care) ● Improvement of Health Conditions	● Improvement of Facilities and Equipments in Clinic and Health Post in the Rural Area Construction/improvement of facilities: 2 Health Post-I, 7 Health Post-II, 24 clinics. Clinic: 1 unit for 10,000 persons or 1 unit for each 8 km radius. ● Training and Supplying Doctors and Nurses ● Improvement of Woman Health Care (increase coverage of institutional births, family planning, child and maternal health, etc.) ● Improvement of Child Health Care (periodical health check-up, vaccination, decrease of infant mortality rate) ● Improvement of Youth Health Care (family planning, prevention and treatment for HIV/AIDS) ● Integration of Traditional and Modern Medical System ● Improvement of Nutrition (supply of vitamin, MOS program, measures for food poisoning) ● Health Care in Serious Epidemics (for Diarrhea, Malaria, Tuberculosis, Leprosy) ● Measures for HIV/AIDS (see above) ● Construction of Clinic (1 unit for 10,000 persons or 1 unit for each 8 km radius), Health Post and Rural Hospital in the Rural Area ● Establishment of Primary Level Referral System in All Districts ● Training and Supply of Doctors and Nurses ● Planning and Management of the Health Sector	MISAU, Local Governments, Residents

	Improvement of Educational Service	● Improvement of Primary and Secondary Schools ● Promotion of Education in All Society	● Improvement of Primary Education (increase of enrollment ratio of girl, improvement of curriculum, free textbook and school funds program, training and supply of teachers and schoolmasters, construction of primary schools in rural area, integration of EP I and EP II) Construction/improvement of primary schools is 203 units. ● Adult Literacy and Education (provision of educational materials, training of voluntary teachers, development and implement special educational program for adult women and rural area) ● Improvement of Secondary School (Training of teachers, install one secondary school at all district level, improvement of curriculum considering vocational training, construction of ESG I and II, etc.) Construction of secondary schools is 4 units. ● Improvement of Technical and Vocational Schools (improvement of agriculture and handicraft schools, improvement of curriculum, encouragement of linkages with private enterprises and other organizations, development of technical and vocational schools in Nampula and Niassa provinces ● Improvement of Moral at School (Community participation, Inspection of school) ● Special Education for Handicapped Persons ● HIV/AIDS program in school (provision of educational materials, lessons of fighting against HIV/AIDS)	MINED, Local Governments, Residents

	Management and Utilization of Water	● Management of Water Resources ● Improvement of Water Supply System	● Management and Utilization of Water Resources (development of dams, formulation of river basin management plan, improvement of meteorological information system, warning system for flood, improvement of irrigation system, etc.) ● Improvement of Water Supply and Sanitary Systems of the Urban Areas ● Improvement of Sustainable Well and Other Water Points in the Rural Area (new:214 units, repair: 45)	MOPWH, Water Supply Companies, Local Governments, Residents

3.5 Formulation of the Pilot Project

3.5.1 Candidates of the Pilot Project

The Pilot Projects are selected from the regional development program and will be implemented during the Study Period in order to provide feed back on the lessons learned before embarking on the full-scale regional development program. The selected candidate pilot projects are outlined below;

1) Agriculture Development Sector

- Organization of Groups (Producer's associations)

  The organization and transformation of family farming to small scale commercial farming (for promotion of commercialization, marketing, transportation, management, investment, financing, enterprising, etc.) is recognized as one of the highest priority strategies in the development of rural and agricultural development in Mozambique. The establishment and strengthening of producer's associations is therefore a high priority project.

- Development of Pilot and/or Demonstration Farms

  The development of demonstration and/or pilot farms for research, development and extension of technology, including investigation of cultivation technology, improvement of planting patterns, promotion and introduction of appropriate technology (machinery and motorization for cultivation), and promoting the use of cattle manure as a fertilizer will be candidates for the pilot projects.

2) Strategic Area Development Sector

- Rehabilitation of Feeder Roads and Bridges

  Most of the roads in the region are unpaved, except for the sections of Nampula-Nacala and the road to Ilha de Mozambique. The roads connecting villages to the main national and regional roads are in a very bad condition, especially in the rainy season. The roads are impassable in certain periods of the year, making access to markets, schools and health facilities difficult if not impossible. The improvement of the access roads is very important for the development of the region, but the locations and length of the roads to be improved make this an enormous task. The prioritization of the road network is a key issue.

- Improving Transportation (Bicycle center)

  Private transportation services, such as pick-up vehicles or small trucks, are

frequently used between farmlands and rural markets or the city of Nampula. The provincial government also started public bus operations between Nampula city and the surrounding rural centers (Anchilo, Nametil, Namaita, Rapale). The number of passengers is steadily increasing at present. The demand for bus services is expected to continue to increase. The number of bicycles is also rapidly increasing in the rural area. They are important for transporting farm and non-farm produce to the market or places of collection along the main roads. The price of motorcycle is still expensive not only for purchasing motorcycle, but also its operation (especially buying fuel). The promotion of bicycle shops for selling, renting and repairing is strongly recommended for the pilot project.

- Development of Michinoeki (Roadside Station)

  The concept of roadside station "Michinoeki" was created and developed in Japan. Japan has more than 800 roadside stations. These stations are multi functional; parking, restrooms, information facility, markets, community facilities by the local government, etc…. The concept of the roadside station is exported to other countries and implemented in for instance, Thailand, Kenya, China too mention but a few. The purpose of the facility is to provide resting and information services to the road users, sell local products, promote events, etc.. These facilities contribute to the regional socio-economic development. The pilot project of the roadside station serves to promote the concept of the roadside station, experienced in Japan and other countries can be fully utilized in this respect. This project will also contribute to the improvement of already existing local markets. Most of the rural centers including district centers and administration posts have small-scale market that collect and sell local products such as vegetables, fruits, fuels, and variety of daily consumer goods. There are also many small stands ('Posto de Venda e Compra') along the national roads to sell charcoal, firewood, cereals, vegetables, cashew nuts, etc. These places required to be improved in aspects such as 1) appropriate location, 2) space, 3) hygienic conditions.

- Development of Storage

  The demand for storages for agricultural products is very high, especially at the rural centers. However, some of the existing storages are not utilized due to their state of deterioration.

- Development of Agro Processing Factory

  Possible new farm produce include inland-fish farms (carp), cattle breeding, chicken

farms, beekeeping, peanut butter, flour mill, dry fruits, jam, biscuit, milk and dairy products. Some of them have already started on an experimental basis.

- Development of Work (Repair) –shop

  The demand of specialist services for repairing wells, manual pumps, small generator, improvement of irrigation channels, bicycles, etc… is very high. The existence of these services is important in the rural areas if the use of technology is promoted.

- Traffic Safety Campaign

  The increase of traffic accidents is becoming an issue related to road improvement projects. According to the police department in Nampula province, the number of traffic accidents and the number of related deaths is rapidly increasing after the pavement of the road between Nampula and Nacala in 2003. The head of the administrative post in Anchilo in Nampula district reported that 5 to 6 persons, mostly school children, were killed by traffic accidents in the years after paving the road. A program has started to educate the school children about "traffic safety", however, there is a need for further strengthening of the program. A Traffic Safety Campaign is recommended to be implemented at locations where many traffic accidents happen on the road from Nampula to Nacala and Ilha de Mozambique. This will also be a key issue for the road improvement between Nampula and Cuamba in the near future.

- HIV/AIDS Campaign

  The combat against the spread of HIV/AIDS is already a priority in the region. The program is ongoing at many parts of the region. It is necessary to expand the existing program, which is supported by the Ministry of Health, donors and NGOs. A pilot project (campaigns) for combating HIV/AIDS along the road between Nampula and Cuamba through is strongly recommended parallel to the construction schedule of the road.

3) Basic Service Sector

- Medical Facility

  As mentioned in Chapter 3, the development level of medical facilities in the rural area is quite low. The small-scale improvements of medical facilities and services will be selected as a pilot project.

- Education

The development level of educational facilities in the rural area is quite low. The small-scale improvement of school facilities will be selected as a pilot project.

- Water Supply

  The development level of water supply facilities in the rural area is quite low. The improvement of water supply services (wells) will be selected as a pilot project.

3.5.2 Selection Criteria

The selection of pilot projects was based on the following criteria:

a) Urgency
b) Local Needs
a) Economic Development Effect
b) Immediate Effect
c) Conformity to the JICA Pilot Project Scheme (Limitations on time, budget and public benefits)

Table 3.5.1 Selection of Pilot Projects

	Urgency	Local Needs	Economic development effect	Immediate effect	Conformity to JICA *1)	Evaluation & priority
Organization of Group	●	△	○	△	△（T）	－
Pilot Farm	●	△	○	○	△（T）	－
Feeder Roads	○	○	●	●	△（T,C）	－
Securing Transportation （ Bicycle promotion center）	●	●	●	●	●	●
Michinoeki	●	●	●	●	○（C）	●
Storage	○	○	●	○	△（T,C）	－
Agro Processing Factory	○	○	●	○	△（T,C,P）	－
Work (repair) shop	○	○	●	●	△（T,C,P）	－
Traffic Safety Campaign	●	●	△	●	●	●
HIV/AIDS Campaign	●	●	△	○	△（T）	－
Medical Facilities	●	●	△	○	△（T,C）	－
School Facilities	●	●	△	○	△（T,C）	－
Wells	●	●	△	○	○（C）	－

Note; ●High, ○Medium, △Low
Remarks; *1) Conformity to JICA Pilot Project scheme: the scheme has some constraints; T=Time constraint, C=Cost constraint, P=Prefer to implemented by Private Sector
Source: JICA Study Team

3.5.3 Selected Pilot Projects

The following 3 pilot projects are selected from Table 3.5.1 as a priority

- Michinoeki (Road side station) as a rural center
- Bicycle Promotion
- Traffic Safety Campaign

The bicycle promotion center and traffic safety campaign satisfies (excluding economic development effect) most of the criteria. The Michinoeki project is suitable to all criteria except the conformity to the JICA criteria. But the Michinoeki is the first pilot project of this type in Mozambique and a lot is expected with respect to its contribution to regional development.

Chapter 4 Pilot Project

Chapter 4 Pilot Project

The Pilot Projects which are selected from the regional development program will be implemented during the Study period to provide important feed back on lessons learned for the full-scale regional development project.

4.1 Objectives of the Pilot Project

The objective of the Pilot Project is to grasp the development procedure, mechanism for project management and required necessary resources including human, material and financial. It will also serve to examine whether such projects are suitable to the local circumstances in Mozambique, and to identify an appropriate and achievable implementation and operation plan for the "Rural Center (Core) Project" which is the one of the main proposals of the "Regional Development Program". These experiences will be gathered throughout the study period during the stages of formulation, implementation and monitoring of the pilot project. After the project management and evaluation phase, an operations manual and financial resources plan for a full-scale project implementation will be developed to ensure a smooth execution of the program. Figure 4.1.1 shows the objective of the pilot projects.

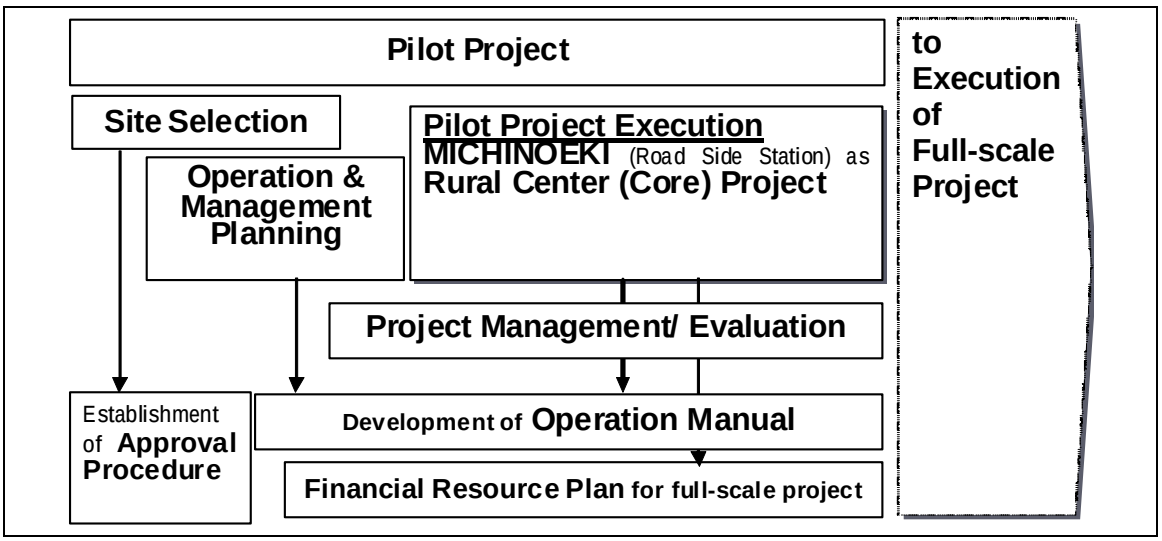


Figure 4.1.1 Objective of the Pilot Project

4.2 Concept of the Pilot Project

4.2.1 Introduced Functions of the Rural Center

To create a synergic effect between the pilot projects, the 3 selected projects are packaged into one integrated pilot project, which is called "MICHINOEKI". This pilot project will constitute of the following elements:

- For the income generation of the farmers / villagers, a market facility to sell agricultural products to the road users is provided
- For the information provision / promotion of events to villagers, an open space is provided
- For the rest area ,a refrigerator, parking area, public toilet and water supply is provided for the road users, and
- For the improvement of farmers' mobility a bicycle promotion center is provided to carry their products to the market.

This packaged pilot project "MICHINOEKI" will be a strategic device for the strengthening of the functions of the Rural Center as shown in Figure 4.2.1.

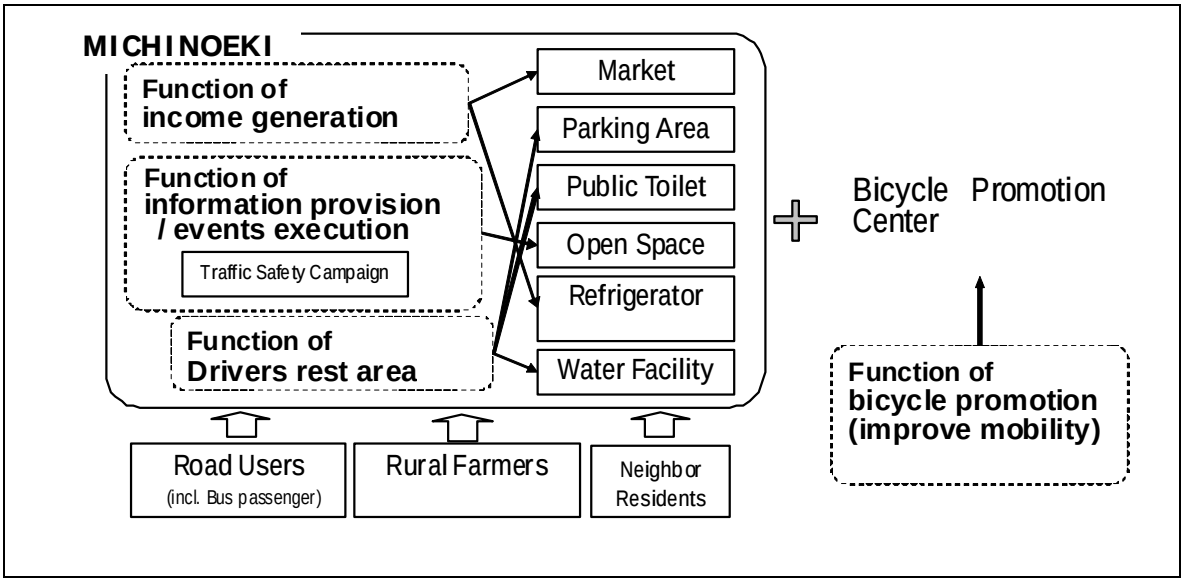


Figure 4.2.1 Concept of MICHINOEKI

For the formulation of the pilot project, the JICA Study Team modified the Japanese "MICHINOEKI" concept to meet the specific Mozambican environment. The income from the "Bicycle Promotion Center" contributes to the operation cost of the "MICHINOEKI", such as staff salary and other running costs, especially at its initial stage.

4.2.2 Activities employed for the Implementation of the Pilot Project

Table 4.2.1 shows the details of the activities of the pilot project.

Table 4.2.1 Outline of the 3 Pilot Activities

Activities	MICHINOEKI(Market)	Bicycle Promotion Center	Traffic Safety Campaign
Objective & contents	• Provision of income generation for rural farmers to sell their products at the market. • Provision of refreshments (drinks/foods) to neighbors / road users facilitated by a refrigerator and freezer	• Promotion and sale of bicycle to rural farmers by the donation from Japanese local government • Sales profit is used for operation cost of MICHINOEKI.	• Education and public awareness on traffic safety issues by utilization of the open space of MICHINOEKI.. Prevention of traffic accidents.
Target	• Road users (rest, purchase of foods/drinks) • Rural farmers (carrying-in produce) • Neighbors (purchase of cold commodities)	• Rural farmers (installment payment for the staff salaries) • (Or local residents)	• Local residents (bicycle users, children) • Road users (drivers, passengers)
Notes	• Parking area, water supply, public toilet, open space for any kind of events	• Lower price as compared to market prices for new bicycles (second hand bicycles)	• Road marking (zebra crossing, theater, music, performance, etc.

4.3 Development Policy of the "MICHINOEKI"

4.3.1 Development Policy

The size of the MICHINOEKI facility is determined based on the market size, local needs, condition of the JICA Pilot Project scheme (limited time and money) and other local circumstances. The actual assumption of the appropriate size is based on the following assumptions;

1. The traffic volume on the road between Nampula and Nacala is assumed to be about 1,500 cars a day. (from the existing available data)
2. The peak ratio = maximum volume at peak hour = 15%
3. The assumed rate of visit = 10% (one out of every 10 cars will stop at the station)
4. The assumed average parking duration = 20 minutes (= 0.33 hours)
5. The necessary number of parking lots = 1 x 2 x 3 x 4 = 7.5 lots
6. The estimated parking area= 7.5 x 50m^2 = 375m^2 (WB guideline: 50-60m^2/car)
7. The estimated area of the MICHINOEKI Project site = 375 x 2 < 900m^2 (WB guideline: 2-5 times of parking area)

Due to the financial limitations for the pilot study, heavy trucks and trailers were not considered.

During the actual design, traffic volume and the required space for vehicle maneuvering must be calculated for each vehicle type. The determined size at the initial stage is almost 1/10 of the MICHINOEKI area used in Japan and the concepts proposed by the World Bank. The common size proposed by the Japanese and WB experiences is about 3,000 to 20,000 m^2. However, the adopted size (900 m^2) for the pilot project is much more suitable to meet the objective of the pilot project and considering the limited time for construction and the easy operation in the initial stages.

During the site selection stage, (as described later on), options should be available for possible expansion of the area if required so by demand for use.

The sizes of the facilities for this pilot project are shown in the table below;

Table 4.3.1 Outlines and Sizes of the MICHINOEKI Facilities

Facilities	Outline	Area (m^2)	Remarks
Access Road	Two-way	50 m(L) x 5 m(W)	Pavement: blocks +concrete
Indoor market and administration office building	Kiosk and office	42	Refrigerator, electric fan, information board
Outdoor market	20 tenants lots (10 more in the future)	105	Hard ground, light shelter with roof
Parking area	For 12 to 16 cars	424	Pavement: blocks + concrete
Open space (terrace and patio)	For resting, performing events, etc.	Terrace: 103 Patio: 22.5	Half of the terrace is roofed
Bicycle promotion center	Container storage for bicycles	14	

Source; JICA Study Team

The general development policy of the MICHINOEKI is described in Chapter 5 of Part 4.

4.3.2 Selection of the Pilot Project Site

1) Anchilo

The main reasons why the selected location of the pilot project is proposed to be in Anchilo, are as follows:

1) The expected future conditions for the study road already exists in Anchilo (the traffic volume has reached nearly 1,500 cars/day, good road condition, close to Nampula, easy to implement and monitor, etc.). In other areas along the study road such conditions of high traffic volume and paved roads do not yet exist.
2) The lessons leaned from this pilot project can be easily applied to other locations along the study road in the future.

3) The pilot project aims to contribute to the socio-economic development of the Nacala corridor, and both the study road and the road between Nampula and Nacala are part of that corridor.
4) Anchilo is located in Nampula district, which is one of the districts along the study road.

2) Candidate Sites

There are 5 candidate sites for the implementation of the pilot project, proposed by the community and other stakeholders, as shown in the following table. Site-5 was finally selected for the following reasons:

1. The site has no existing building structures and the land is currently not used
2. The lowest expenses for compensation fees (only some trees)
3. People living in the eastern part of the Anchilo Administrative Post will benefit from the project
4. Area for future expansion is available around the site.

Table 4.3.2 Comparison of Candidate Sites

	Site-1	Site-2	Site-3	Site-4	Site-5
Location (km) from Nampula City	18.5	18.2	12.5	17.5	19.1
Available Area (m^2)	1,200	2,000	5,000	3,000	2,500
Present Land Use	Public use (police station)	Public use (community facility)	Private use (quarry site)	Christian community	No use
Compensation	Relocation of police station	Relocation of community facility	One farmhouse, trees and crops	Trees and crops	Trees
Advantages	Synergy effects with the existing market due to proximity	Enough space	Plenty of space	No building structure	No building and no use of land
		Close to the center	Attractive view is available	Pleasant views	Easy access to the eastern part of the administrative post
Disadvantages	Narrow space	Limited space within 30m from the road side	Distance to the center	Within church area	Distance to the center
	Next to the mosque		Fear of traffic accidents (many curves)		

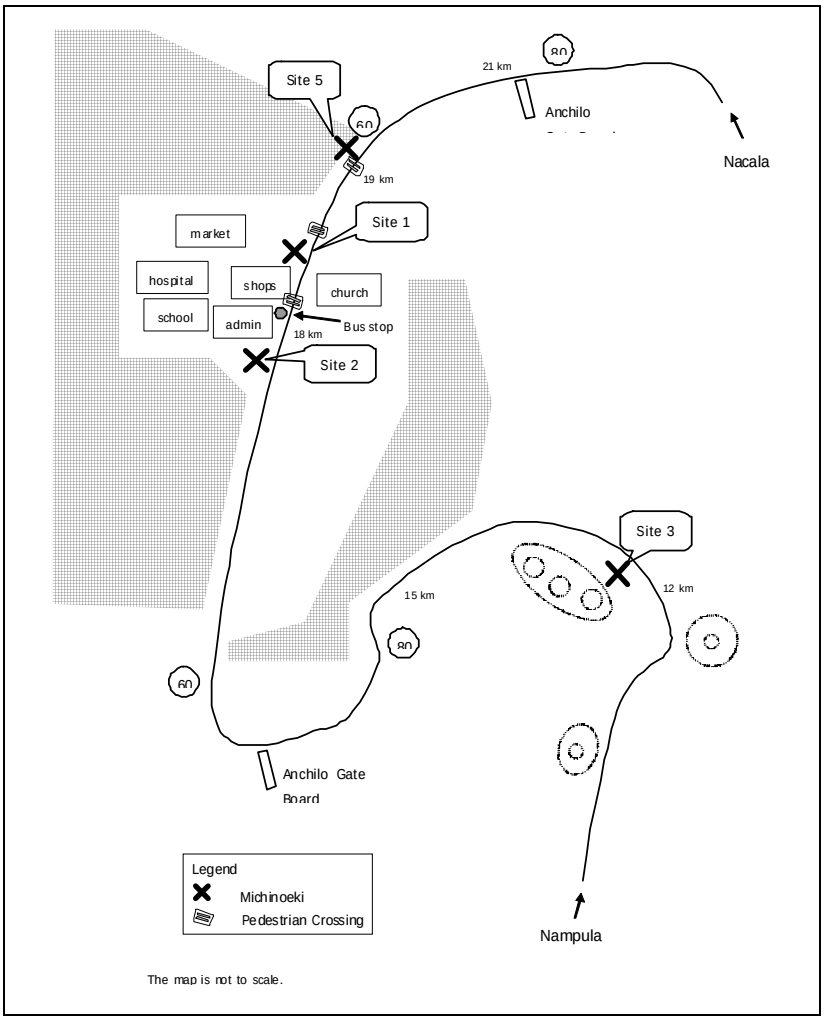


Figure 4.3.1 Location Map of the Candidate Sites

3) Selected Site

The location of the proposed MICHINOEKI is on the N1 km 19.1 from Nampula City (part of the central area of Anchilo Administrative Post). The site is located on the left side of the road from Nampula to Nacala, with a size of 30 m x 30 m (= 900 m^2). An access road (50 m long and 5 meter width) is constructed from the road to the site. The conditions of the surroundings are as follows;

- Western side: Borrow pit (with water)
- Northern side: Open space (few farmers houses)
- Eastern side: One farmer's house
- Southern side: Open space (Access road will be constructed)
- Opposite site of the road: cluster of houses

4.3.3 Facility Planning and Design

In accordance with the operational requirements of the MICHINOEKI, which were identified earlier in the regional development program, facilities of a road side station are to be planned with 5 major functional components. These are: i) Market ii) Parking Area iii) Public Toilet iv) Open Space v) Bicycle Promotion Center.

1) Land Use and Facilities Layout Plan

The project site measures 900 m^2 with a two-way access road of 5.0 m wide which connects to the N1. The 5 principal components of the site include a car park inside the compound. Because of the difference of ground level, the access road is used for adjusting these levels.

To make optimum use of the space, the components are distributed along the land boundary line surrounding the parking area which is located at the center. Figure 4.3.2 indicates a conceptual lay-out plan of the facilities.

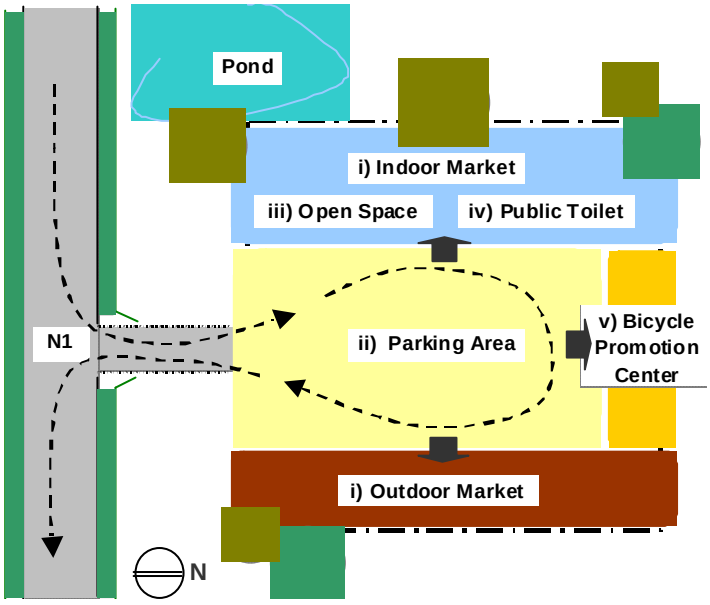


Figure 4.3.2 Conceptual Lay-out Plan (prepared by the Study Team)

The conceptual layout is embodied to plot each component based on the followings policies:

- ✓ Market: an outdoor market place is planned together with a station kiosk (Indoor Market) in order for users to access agricultural produce from the local community (local specialties) as well as refreshments such as cold drinks. The Indoor Market is located in a

building combined with an administrative office at the West side whereas the Outdoor Market is placed at the Eastern border of the site.

- ✓ Parking Area: parking lots (11 numbers) are planned at the center of the land. A concept of central parking is employed. A one-way drive lane (3.5 m of width) circulates around the parking bays.
- ✓ Public Toilet: Restrooms are located in an annex building detached from the Indoor Market but located on a 'flow line' (walking line) connecting to the Open Space as well as the Parking Area. It aims firstly to optimize accessibility and usability of the restrooms inside of the station, and secondary to minimize possible inconvenience due to unpleasant odors (a semi-embedded septic tank is to be required).
- ✓ Open Space: an open space is planned close to the station kiosk to offer a comfortable rest area and a space in the open air for multipurpose events. Users might enjoy a pleasant landscape with an existing pond and swamp next to the site. An easy connection to the restrooms is offered along the 'flow line' (walking line).
- ✓ Bicycle Promotion Center: the bicycle storage, which is a reusable cargo container, is a key element and placed at the North innermost part of the site. Space is also reserved for utilization as a bicycle repair workshop.

These policies are incorporated into the site planning and facilities layout as shown below.

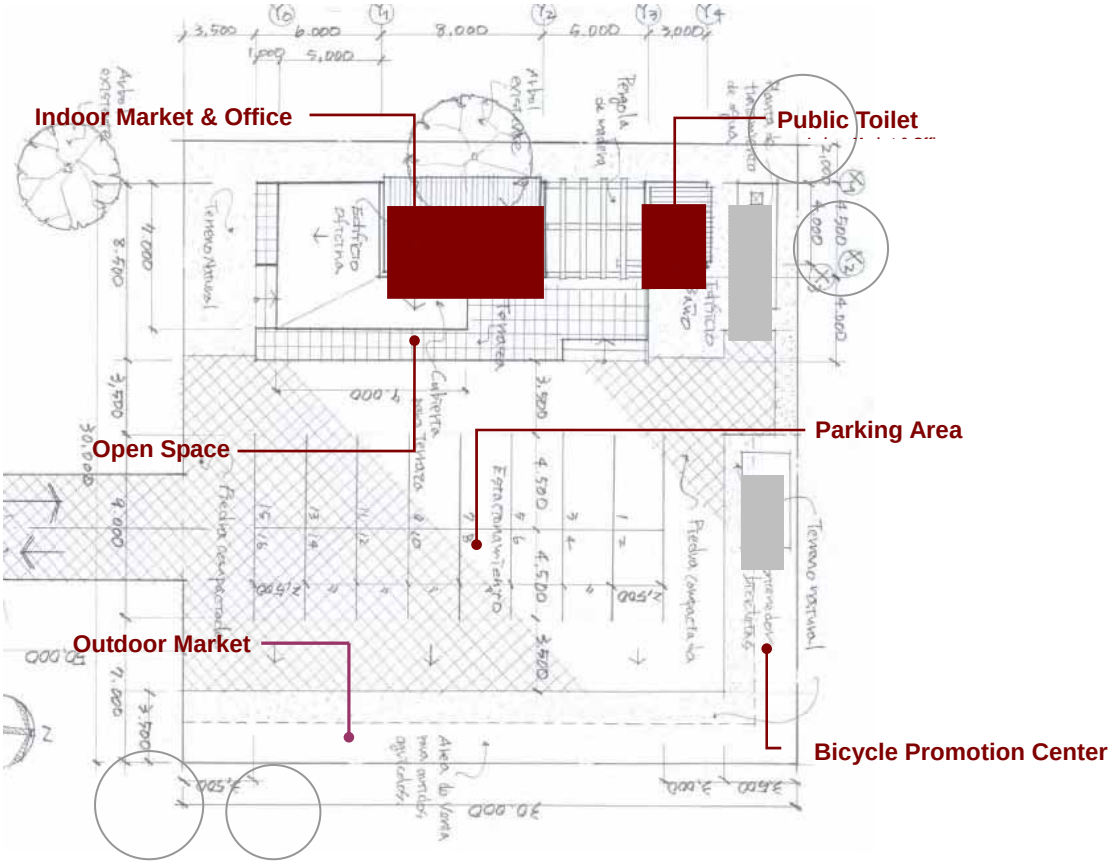


Figure 4.3.3 Site and Facility Layout Plan (prepared by the Study Team)

2) Building and Architectural Plan

Architectural features of the facilities are specified as follows. Conventional building codes, specifications and standard materials are applied for the facilities.

- Indoor Market (Station Kiosk) & Administration Office: this building measures 8.00 m x 4.50 m rectangular, 42.0 m^2 of total floor area. A masonry wall with concrete blocks and metal sheet roofing are employed for the main structure. A direct connection to an open-air terrace and patio as "Open Space" is intended. One refrigerator and one freezer are equipped for the cold storage of foods and drinks. Interior / exterior finishing is shown as in the table below.

  Part of the wall will be used for an information board. Posters (Traffic Safety Campaign) can also be pinned on these walls. The tenant schedule chart will be collated to the other part of the wall.

Interior finishing	
Floor :	Ceramic tile, Color: Terracota or Café or similar Skirt：h=10cm（ceramic tile, same color）
Wall :	Mortar base + Vinyl/Acrilic paint, Color: White（0700 Blanco Nuvem）Door & Window: Varnish finish or Oil paint/Enamel paint Color: Café w/Float Glass t=6mm
Ceiling :	Suspended Ceiling: Plaster board +Enamel paint + w/ T-bar suspension C.H.:2.80m, Color: White（0700 Blanco Nuvem）
Furniture etc.:	Counter：Wooden Top board with CB base
Exterior finishing	
Wall :	Mortar base + Vinyl/Acrilic paint, Color: White（0700 Blanco Nuvem）Glass block window：@200x200
Roof :	C-channel purlin + Metal roofing sheet Cal.24, Color: Brick red

- Outdoor Market: an open-air space measures 3.5 m x 30.0 m rectangular, 105.0 m^2 of total floor area. Pedestrian tile blocks are laid out on the floor as a footpath and tenants are expected to install a simple booth with temporary framing & roofing.

- Public Toilet: restrooms for men and women are individually equipped in an annex building, which measure 3.0 m x 4.0 m rectangular, 12 m^2 of total floor area. Masonry wall with concrete blocks and metal sheet roofing are employed for the main structure. Users of the facilities are allowed to use them free of charge. Interior / exterior finishing is shown in the table below.

Interior finishing	
Floor :	Ceramic tile, Color: Terracota or Café or similar Skirt：h=10cm（ceramic tile, same color）
Wall :	H＝1.80m to Roof: Mortar base + Enamel pain, Color: White（0700 Blanco Nuvem） H＝0.00m to 1.80m: Mortar base + Ceramic Tile, Color: Grey Wooden Door & Window: Varnish finish or OP/EP (Color: Café) w/Float Glass t=6mm
Ceiling :	Not applicable
Furniture etc.:	Toilet furniture： Side Screen Wall: EP, Color: White(0700 Blanco Nuvem)
Exterior finishing	
Wall :	Mortar base + Vinyl/Acrilic paint, Color: White（0700 Blanco Nuvem）Glass block window：@200x200
Roof :	C-channel purlin + Metal roofing sheet Cal.24, Color: Brick red

- Terrace & Patio: an open-air terrace measures 103.0 m^2 of total floor area surrounding and connecting to the Indoor market. 50.0 m^2 of the terrace is to be covered by sunshade cloth to provide an outside rest area.

  A patio measures 4.5 m x 5.0 m rectangular, 22.5 m^2 of the floor area, over which a wood-framed pergola is built. It is planned to connect the Indoor shed and the Public toilet through a 'flow line' (walking line). A washing sink and a drain board are to be furnished aside and available for washing agricultural articles for sale.

  Both the terrace and the patio are paved with pedestrian tile blocks whose finishing level is raised up by 40 cm from the ground level. A stage like open-air space is combined and available for the implementation of events and meetings. Exterior finishing is shown in the table below.

Exterior finishing	
Floor :	Pedestrian Tile Block（Inter-rocking）Color: Grey
Wall :	Not applicable: Open Air
Ceiling :	Sun-shade cloth＋Timber structure, Color: Brick or similar (Shade Cloth)Varnish finish (Timber frame) Pergola：Timber framing + varnish finish
Furniture etc.:	Washing Sink, Drain board

- Parking Area: main parking area measures 26.5 m x 16.0 m rectangular, 424.0 m^2 of total floor area, paved with pedestrian tile blocks. About 12 to 16 numbers of parking lots for medium -sized cars are allocated in accordance with an operation plan of the facilities. A central parking area is employed as a default parking style, whereas the operation plan allows the parking style to be modified for optimizing the land use.

- Bicycle Promotion Center: the bicycle storage, which is a reusable cargo container, measures 6.0 m x 2.4 m x 2.5 m, 14.0 m^2 of floor area and is placed on container basement raised up by 20 cm from the ground level.

The main facade of the facilities with a view from the parking area is shown in figure 4.3.4.

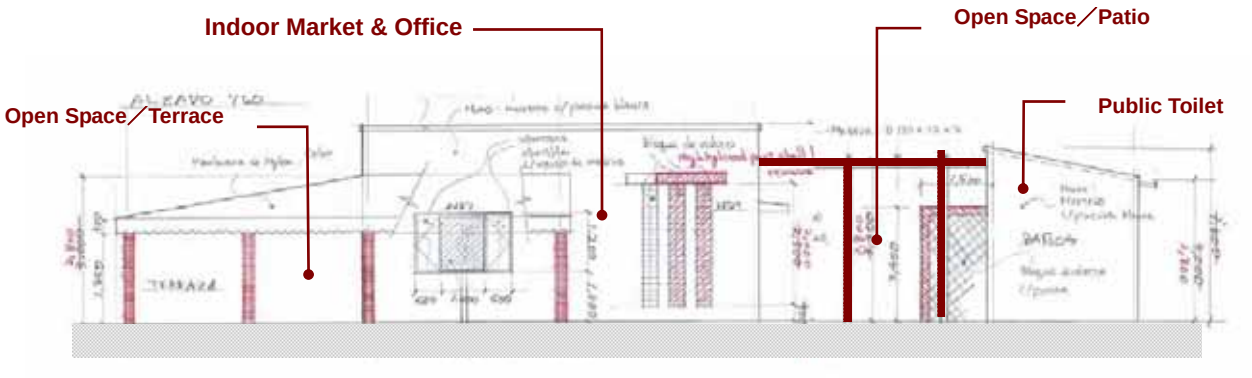


Figure 4.3.4 Elevation of the Facilities (drawn by the Study Team)

3) Utilities Planning

Both mechanical and electrical installations are planned based on the following requirements and conditions. It notes that a conventional M&E code, specifications and standard materials will be applied for the facilities.

- Sewage: a septic tank with a capacity of 30 person/day is equipped right aside of the Public toilet in accordance with the quantity of toilets. The tank measures 2.5 m x 6.0 m x 2.0 m and composes of 3 internal tanks in order for discharged sewage water to be biologically treated by digestion of anaerobic bacteria. Treated sewage water is to be discharged to the absorption pit at the end of the sanitation facilities.

- Service water supply: potable water is to be served for the facilities. Water vein is bored at the furthest side (over 20.0 m of distance) from the sewage discharge point, that is, located at the north-east of the site. Ground water can be extracted from 3.0 m of depth, however the permanent ground water table lays at 36m depth. It is therefore necessary to carry out pre-boring. Service water is to be supplied from the piped water for washing agricultural goods and flushing the restrooms.

- Electricity: The primary feeder is under the jurisdiction of the Electricity Company of Mozambique (EDM). It is anticipated to extend this to nearest point of the site with adequate electrical features. Secondary connection at the low voltage: 3P/3W 220V is planned between a branching post of the primary feeder and an electrical panel located in the indoor market shed.

Lighting fixtures (fluorescent tube type) and polarized receptacles (2P-220V, duplex) are planned inside of both the Indoor market and the Public toilet sheds. A power source at 3P-220V for air conditioner as well as for the feeding pump at the cistern is available. Figure 4.3.5 indicates the feeder line of service water and sewer line.

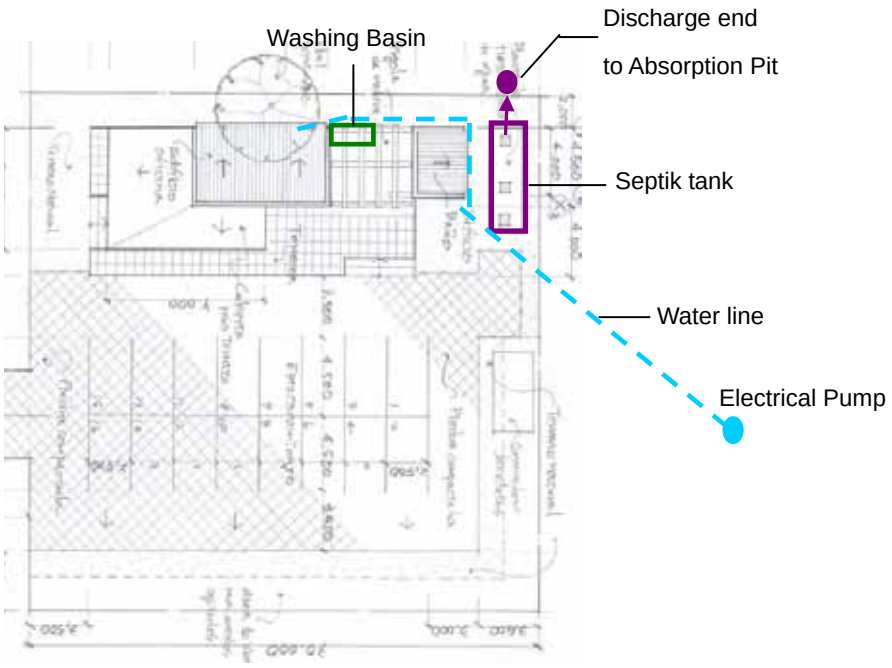


Figure 4.3.5 Service Water and Sewer Line

4.3.4 Development Permissions

The following permissions are necessary for the development of the MICHINOEKI;

- Concession of land
- Project Permission
- Construction Permission
- Business License

Table 4.3.3 Applications of Necessary Permissions

Type of Permission	Submission			
	Applicant	Licensed by	Office in charge	Necessary documents
1. Concession of Land	ANE	District Province	Agriculture Public works & housing (District), Cadastre (Province)	• Location map (inspection on the site) • Community consultation • Document-1 : General Comment for the results of community consultation • Document-2 : Appreciation Form
2. Project Permission	ANE	Province	Public works & housing	• Project Document
3. Construction Permission	ANE	District		• Project Document • Construction schedule
4. Business License	POU Forum of Producer's Associations	District	Industry & commerce	• Document • Project Document • Approval on Concession of Land • Construction License • Trade name • ID of owner

Details of Procedures for obtaining Permission for Concession of the Land

The purpose of the procedure is to get permission of land use and the main steps to get approval were as follows;

- The officials from the Cadastre (Province), Agricultural Department and Public Works & Housing Department (District) visited the project site and identified site boundaries, marked the corners and boundary lines, and announced the site location to the local community .

- After confirmation of the site location, the community consultation meeting was held, chaired by 3 officials from the institutions mentioned above. A total of 55 members of the community attended the meeting. ANE, as the owner of the project, and the JICA Study Team also presented the pilot project to the meeting. The major agenda of the meeting was as follows;

  - Confirmation of the site
  - Contents of the project
  - Land tenure and land use system in Mozambique
  - Compensation system in Mozambique
  - Questions and answers
  - Records of meeting (Document-1)
  - Signature (54 persons agreed on the use of land and signed, while 1 person left before the meeting finished)

- The official from the agricultural department of Nampula District made a general comment on the above mentioned records of the meeting (Document-1) and submitted it to the District Administrator for approval. Document-1 and the approval letter of the District Administrator were sent to the Provincial Cadastre.

- ANE, as the owner of the project, filled in an application form (Document-2) and submitted it to the Provincial Cadastre. This form contains name, address, ID number of the owner, site location map, area of the site, the purpose of the use of land, and payment record for the approval of the land use, including the payment for the allowances for the officials and incentives for the communities.

- In addition to the above documents for the application, the following information/ documents were necessary for the approval procedure.

  - Site location map (made by provincial Cadastre)
  - GPS data: latitude and longitude (made by provincial Cadastre)
  - Land use plan for 5 years
  - Receipts of payments
  - Internal information
  - Permissions

4.3.5 Construction of the Facilities

1) Selection of Contractor

The JICA Study Team selected a contractor for the construction of the facilities in accordance with the JICA's Local Contract/Subcontract Guidelines. Selection was done through a competitive bidding procedure using price quotation amongst 3 pre-selected local contractors, which was taken place from April 9th to 12th, 2007. Those bidders were pre-assessed and short-listed beforehand by the study team.

The awarded contractor is a Nampula-based reputable company called "Condor Construção Civil e Obras Públicas Lda.". This contractor offered the lowest bid and presents an ample capability supported by plenty of work experiences in the project area. The contract was duly signed by both parties and entered into effect on 13th April 2007.

2) Construction of the Facilities: Construction Schedule

The construction work is scheduled and plotted into a chart to facilitate progress control. Figure 4.3.6 indicates a base-plan against which periodic progress will be plotted.

- Scheduled start: 15th May, 2007
- Scheduled finish: 30th July, 2007
- Total construction period: 10 weeks

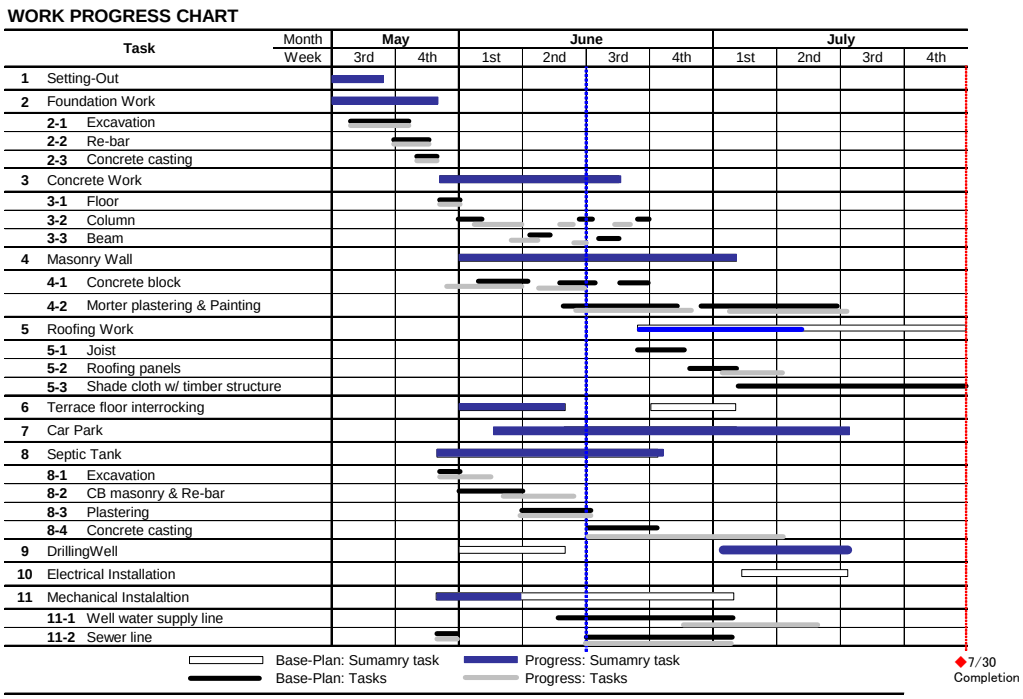


Figure 4.3.6 Construction Schedule (as of mid of July 2007)

4.4 Management and Operation Plan of the "MICHINOEKI"

4.4.1 Project Management Policy

1) PPP (Public and Private Partnership) Method

The MICHINOEKI is implemented by PPP (Public and Private Partnership) method in cooperation with ANE, Local Government and the Project Operation Unit (POU). The major functions of the MICHINOEKI are providing public services and information for the road users and income generation devices for the local farmers and residents. Therefore the administration and management of the MICHINOEKI is done in partnership with ANE and the Local Government (Regional Development Organization). However, the actual operation is delegated to POU, which is established by the Local Government.

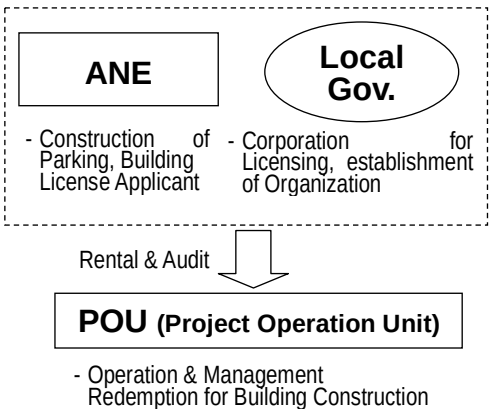


Figure 4.4.1 PPP Method

2) The Process of Organization and Personnel Assignment

The procedures for the organization of the operation unit and appointment of staff are as follows;

- The provincial governor appoints the Station Master as the responsible person of the project and field supervisor on behalf of the Local Government
- The Station Master selects an eligible person or organization to establish the POU (The existing Forum of the Producer's Associations in the Anchilo Pilot Project)
- The selected person / organization (The Forum) establishes the POU and assigns the operation staffs

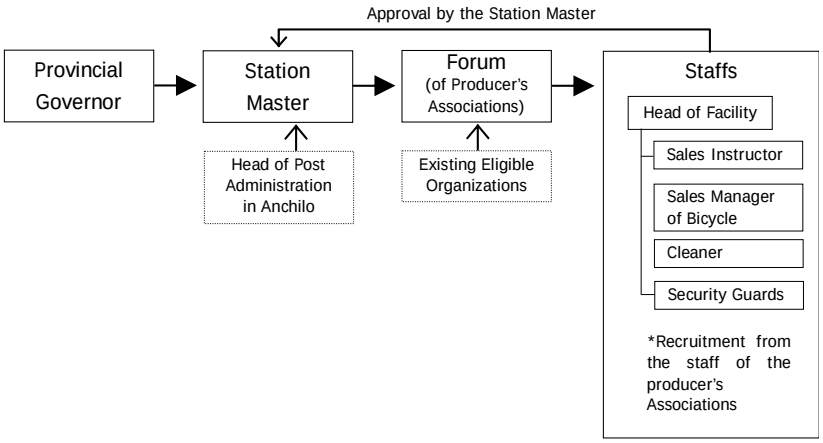


Figure 4.4.2 Personnel Appointment Procedure

3) Selection of Staff

On 3 May 2007, the 6 staffs of the MICHINOEKI were assigned by the Forum of Producer's Association in Anchilo. The selection of the staff was made using the following procedures;

- 2 applicants from each of the existing 10 producers associations were listed as candidates.
- 14 of the candidates attended the test and interview (interviewer was the president of the forum)
- Finally, 6 persons were selected by the president according to the results of the tests and interviews

The profiles of the selected staffs are shown in the table below;

Table 4.4.1 Profiles of the MICHINOEKI Staffs

No	Job Title	Name	Date of birth	Age	Sex	Belong	Education grade
1	Head of facility	Juliao Salino Antonio	03.07.82	24	Male	AMA	8°
2	Sales instructor	Ludes Luis Cardoso	04.07.81	25	Female	7 de Arbil	7°
3	Bicycle Sales Manager	Cardoso Rosario Antonio	14.10.67	39	Male	ACAN	7°
4	Cleaning	Angelina Joao Vieira	09.08.70	36	Female	ACAN	6°
5	Security Guard-1	Agostinho Americo	12.08.73	33	Male	ACAMO	5°
6	Security Guard-2	Eugenio Joao Malua	26.10.76	30	Male	AMA	7°

4) Administration System

The facilities are owned by ANE, which subsequently lend the facilities to the POU (POU pays a monthly rental fee for the use of the facilities to ANE). The income from the rental fee shall be used for maintenance of the facilities, such as buildings, parking areas, water facilities, refrigerator, etc., and improvement and expansion of the facilities in the future. Other important aspects on project management and operations are;

1. The POU should submit for approval and monitoring purposes monthly reports with financial and business statements to the ANE Nampula office and the Provincial Government of Nampula
2. ANE Nampula should submit a copy of the monthly report to ANE Headquarter, which subsequently submits a copy of the half year report to the JICA Mozambique Office.
3. The Local Government provides an auditor for the inspection of the financial statement once or twice a year.
4. Coordination meetings between ANE and the Local Government will be held, when found necessary.
5. The main sources of income are tenant receipts, sales income (food/drink) and profit of the bicycle sales, and the main expenditure items are salary of the staffs, rental fee, tax, cost for purchase of stock (prime cost) and other miscellaneous costs.

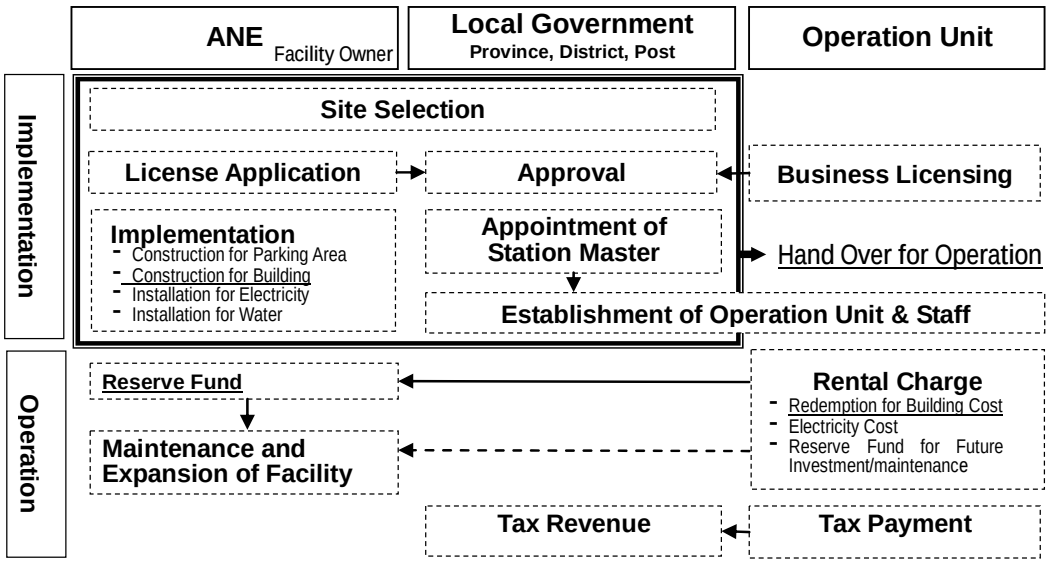


Figure 4.4.3 Implementation and Operation System

5) Organization Structure of Management and Operation

Figure 4.4.4 shows the proposed organizational structure of project management.

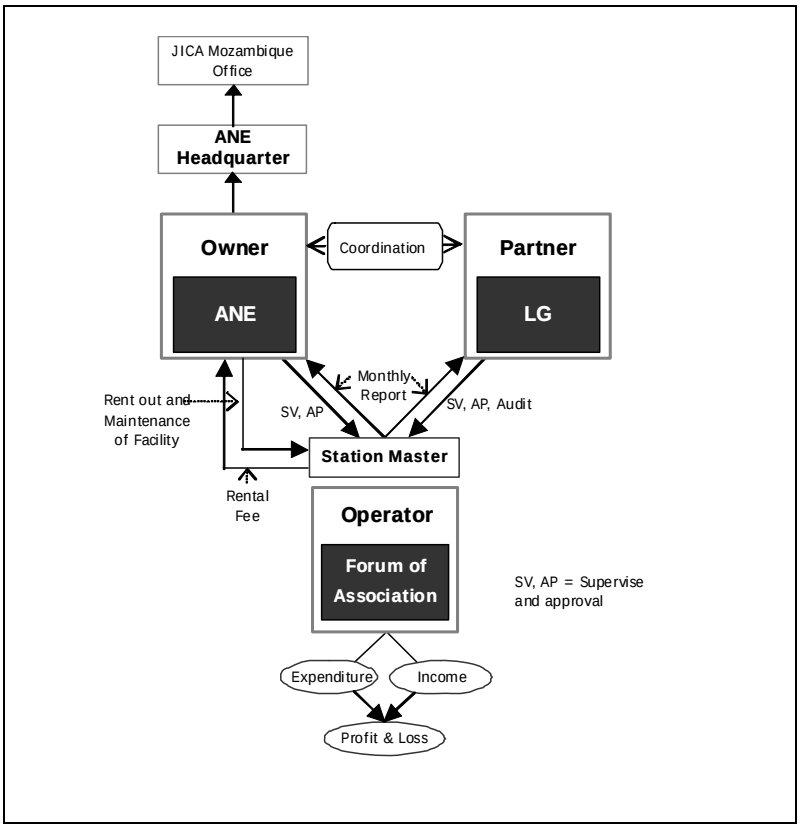


Figure 4.4.4 Organization Chart of the MICHINOEKI

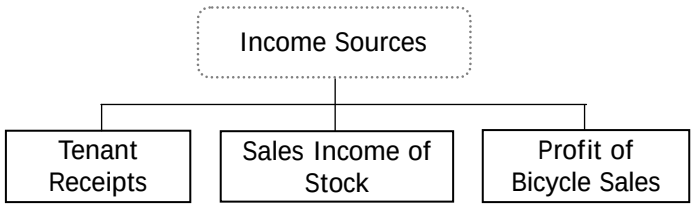
4.4.2 Operation Plan

1) Business Plan

■ Income sources

The income sources of the MICHINOEKI are threefold;

- Tenant Receipts
- Sales Income of Stock
- Profit of Bicycle Sales



Tenant Receipts

The 20 lots of market spaces are allocated on the outside of the MICHINOEKI. The POU staffs will build simple structures (thatched roof, bamboo pillars and sales board with hard surface of the ground) for the lots. The tenant charge is 5 MTn per lot per day. When all the lots are rented out, 3,000 MTn per month is expected as an income for the MICHINOEKI. Ten additional lots can be accommodated within the site in the future should the need arise. The major products for sale will be;

- Agricultural products (Cabbage, Paprika, Pepper, Rape, Lettuce, Tomato, Sesame, Peanuts, Cashew nuts, etc.)
- Handicrafts (Bamboo basket and furniture, Wood carvings, etc.)
- Charcoal

Sales Income of Stock

The MICHINOEKI has 1 refrigerator in the main building. This facility contributes to keep the foods and drinks cool. The foods and drinks will be bought from the wholesale shops at lower prices and sold at retail price. The agricultural implements, seeds and daily necessities will also be sold in the building. The main customers of such commodities are the members of neighboring communities of MICHINOEKI. The number of visitors (road users) is estimated as 1,000 persons per month during the initial stage. The major commodities for sale will be;

- Drinks (Mineral water, soft, alcohol, energetic, fresh juice)
- Foods (Bread, biscuits, wild fruits, eggs, butter, cheese, ice cubes, ice cream)
- Clothes (School uniform, general)

Profit of Bicycle Sales

The third source of income is the profit of bicycle sales. Around 74 secondhand bicycles and spare parts are imported from Japan, donated by the Taitou City Office of the Tokyo Metropolitan Government.

- Sales Method 1: The price of the bicycle is set as 900 MTn in average (800 to 1,000 MTn according to the conditions of the bicycles). The sale is based on an installment system (6 months payment period). The bicycles, mainly made in China and India, represent a market price in Nampula ranging from 1,000 to 1,500 MTn. The pricing policy is based on the following criteria;

- Bicycles sold at the MICHINOEKI are secondhand bicycles.
- The price should be set at an affordable level for the rural farmers

- Sales method 2: The applicants, who do not have the above referred amount available, have a chance to get the bicycle through provision of voluntary labor for the operation and maintenance of the MICHINOEKI. The assigned staff is going to receive the bicycles by this method, as they provide labor for about a period of 6 months as a volunteer during the preparation works of the MICHINOEKI.

The general interest in purchasing the bicycles will likely be higher than the number of bicycles available. Selection of applicants is to be done based on the following criteria;

- Maximum of 1 bicycle per household to assure a wider distribution of benefits (families who already possess a bicycle are not allowed to participate in the auction)
- Members of registered organizations including producer's associations can apply for a micro credit to secure the installment payment.

■ Expenditures

Salary

The staff salary will be discussed amongst the POU staff and they will propose a salary system to ANE and the Local Government for pursuing approval. The JICA Study Team recommended system with a step-by-step salary increase, with a lower initial salary level and subsequent increase according to the business conditions of the MICHINOEKI.

Rental Charge

Within the collaborating framework between ANE and the local government, ANE implements the facilities and takes on the construction cost of the building, septic tank, etc… These expenses should be paid back by the local government as a rental charge. In this case, it is found more appropriate that the POU should repay these cost from their profits on behalf of the local government.

A worked out example of the rental charge to be paid by the POU to ANE on a monthly basis is described below. The fee is supposed to be utilized for maintenance cost of the compound, buildings, water supply facilities, refrigerator, parking area, tenant space, and access road. The estimated rental fee is set at 3,840 MTn per month, which is calculated based on the depreciation cost of the station, as follows;

Table 4.4.2 Estimation of Depreciation

	Life (years)	Cost (us$)	Depreciation /month (us$)	Ditto (MTn)
Building, septic tank	50	75,216	125.36	3,300
Refrigerator	10	2,478	20.65	540
Total		77,694	146.01	3,840

Note: Reference data; Rental fee of the commercial floor in Nampula city : 20-200 MTn/m^2 /month.

In the pilot project, all investment cost for implementation of the project is sourced from JICA. It is therefore not necessary to consider these cost for the calculation of the rental fee. However for the full-scale project, it should be discussed how to recover the repayment of the investment costs and who should be responsible (in line with the example as described above).

Tax

The business tax of 750 MTn per year should be paid to the local government.

Cost for Purchase of Stock (Prime cost)

The cost for purchase of stock for sales is estimated as follows (example);

Table 4.4.3 Cost Estimation for Purchase of Stock (Prime cost)

Commodities	Unit price (MTn)	Quantity(units)	Prime cost (MTn)
Fanta	5.33	100	533
Cola	11.25	200	2,250
Beer	18.42	200	3,684
Foods		Ls	5,000
Agricultural implements and seeds		Ls	3,000
Other commodities		Ls	5,000
Transport cost		Ls	3,000
Total			22,467

Other costs

The cost for electricity and miscellaneous items is estimated as follows (example);

Electricity…… 1,000 MTn/month

Purchase miscellaneous……. 3,450 MTn/month

The preliminary assumptions for the income and expenditure, as mentioned above, were examined by the JICA Study Team. However, the final considerations with respect to the business plan (income and expenditure figures) should be made by the POU with the approvals of ANE Nampula Delegation and the Local Government, taking the actual progress of the business into consideration.

2) Money Flow and Management

Figure 4.4.5 shows the money flow of the MICHINOEKI. The large portion of the cash is deposit at the bank account in Nampula City, and a small portion of the cash is kept in a safe of the MICHINOEKI building.

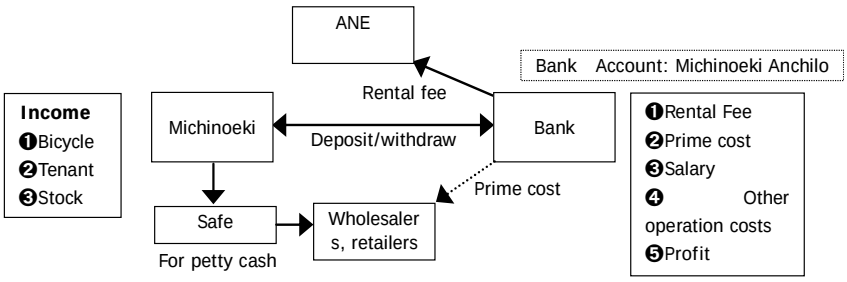


Figure 4.4.5 Money Flow

3) Monthly Report

The main chapters of the monthly report are;

- Chapter 1: Financial Statement (statement of profit and loss, balance sheet, cash flow, etc)
- Chapter 2: Business Report (statement of tenant, bicycle and stock sales, working hours, security, environmental and social aspect, events, etc.)
- Chapter 3: Proposals for the Future (use of facilities, PR, etc.)

The POU will prepare the report according to the proposed format and submit three copies to the ANE Nampula Office and one copy to the Local Government, with the attachment of the copies of the bank abstracts every month. ANE Nampula will distribute copies of the report to ANE Headquarter and the JICA Mozambique Office respectively.

4) PR Plan and PR Material

Table 4.4.4 shows the Public Relations (PR) plans of the pilot project.

Table 4.4.4 PR Plans

PR materials, media	Name	Purpose	To whom/ targets	How to distribute	Specification and quantity
Radio	MICHINOEKI Project in Anchilo	To advertise the MICHINOEKI project	The residents of Nampula city and Province	Through the radio in control, 2 times a day for 10 days	15 seconds
Leaflet-1	Opening of the MICHINOEKI	To advertise the opening	Potential road users (visitors)	At the suitable places in Nampula city before the opening	B/W copies, 1,000 sheets
Leaflet-2	What is MICHINOEKI	To inform how to use the MICHINOEKI	Potential applicants of tenant (farmers) and bicycle and explanation days	POU staffs to Head of Producer's associations to Members of associations to Other residents	B/W copies, 1,000 sheets
Leaflet-3	How to get bicycle	To inform how to get bicycle	Potential applicants of bicycle	On the explanation days	B/W copies, 1,000 sheets
Leaflet-4	How to get tenant space	To inform how to get tenant space	Potential applicants of tenants (farmers in Anchilo)	On the explanation days	B/W copies, 1,000 sheets
Leaflet-5	Pedestrian crossing	To inform about pedestrian crossing and traffic safety	Road users and neighbors	On the traffic safety campaign day	B/W copies, 1,000 sheets
Banner-1	Traffic safety campaign	To draw attention to the campaign	Road users and neighbors	Before and after the campaign day (1 week)	2.0mx0.8m, bamboo frame, 3 units at road side
Banner-2	MICHINOEKI	To draw attention to the existence of the MICHINOEKI	Road users and neighbors	Before and after the campaign day (5 weeks)	2.0mx0.8m, bamboo frame, 3 units at road side

5) Traffic Safety Campaign Program (TSC Program)

Objectives of the Project :

This project is part of the proposed short-term development program with the objective to increase the level of traffic safety awareness and to reduce traffic accidents. The project, composed of 2 activities, aims to mitigate any negative impact caused by the road improvement project. The TSC projects will mark a pedestrian crossing on the Nacala Corridor to increase the level of safety for pedestrians when crossing the corridor. Another activity is to organize a campaign for education and public awareness about traffic safety aimed at drivers, school children and community members,. .

Project Site :

a) Location

At the location of the MICHINOEKI, Anchilo, 19 km from the city of Nampula

b) Selection criteria

- Anchilo is the one of the areas in the Nacala Corridor, where traffic accidents frequently occur

After the completion of the Nampula-Nacala Road Improvement Project in 2003, the number of traffic accidents and casualties along the road has increased significantly. The number of traffic accidents in Anchilo caused as many as 12 injuries and 10 deaths over a period from 2004-2006. Thus there is a need for measures to prevent traffic accidents within the community and amongst other stakeholders involved.

- The police department of the province has a plan for the implementation of education and awareness campaigns about traffic safety. However, the plan has not yet been implemented, due to lack of financial, human and material resources.

Major Activities :

Fixing a date (preferably on a Saturday) for the implementation of the "traffic safety campaign day" and execution of the following activities

a) Speeches by the implementing bodies, supporting entities and stakeholders
b) Execution of the 'Auto Stop' action on the road to call drivers' attention to the traffic safety day
c) Practical session for crossing the road on the newly marked pedestrian crossing using Stop Boards aimed at the school children
d) Performance of music, drama, film and other events, performed by Cultural Groups from Nampula.
e) Practical session to train community members in correctly riding a bicycle and bicycle maintenance.

Procurement and Preparation :

a) Posters
b) Pamphlets
c) Banners and Signboards
d) Stop Boards

Table 4.4.5 shows the detail program of the traffic safety campaign.

Table 4.4.5 TSC program

Time	Programs	Who	Whom	Procurement	Contribution
8:30 ~ 9:00	Opening Speeaches			Speaker, Mike	JICA
	1) Local Gov.	Concerned person	Community	Banner	JICA
	2) Police	Concerned person	Community		
	3) INAV	Concerned person	Community		
	4) ANE	Concerned person	Community		
	5) JICA	Concerned person	Community		
9:00 ~ 9:15	Awarding Ceremony	Concerned persons	Winers (3 children)	3 prizes+certificate, poster	JICA
9:00 ~ 12:00	Auto Stop	Police	Drivers/passengers	phamphlet-1	INAV
				phamphlet-2	JICA
9:30 ~ 10:00	Practice of Predestian Crossing	Police	School children, old persons	Stop board 2 units	Police
				Marking of pedestrian crossing and sign boards	(ANE)
10:00 ~ 10:30	Practice of Bicycle Riding	Police	Applicants	2 Bicycles	JICA
10:30 ~ 12:30	Performance	Artist Group	Community	Speaker, Mike	JICA
	1) Threater			Story pictures	JICA
	2) Music			Employ artist group	JICA
	3) Performance				
	4) Game				
12:30 ~ 12:40	Ending Speeaches	Local Gov.		Speaker, Mike	LG

4.5 Monitoring and Evaluation for Pilot Project

4.5.1 Introduction

This section describes the results of the monitoring and evaluation stage of the MICHIOEKI pilot project. All aspects of planning, design, construction, approvals and establishment of management & operation have been subject to monitoring and evaluation and the experiences will be applies to the full-scale project.

4.5.2 Monitoring of MICHIOEKI Pilot Project

1) Construction & Approvals for Implementation

The construction of the MICHINOEKI Anchilo was nearly finished by the end of July in line with the contract implementation plan and without any accidents. During this period, layout design and specifications of the facilities were discussed and adjusted with the contractor in order to adopt them to the Mozambican circumstances. This was important as it was the first experience for a Mozambican contractor to construct a multi-functional road side station with a Parking Area, Indoor Market, Public Toilet, Outdoor Market and Water & Electronic installments.

Figure 4.5.1 MICHIOEKI Anchilo

The approvals for Implementation (as discussed in 4.3.4) included many different procedures and the status of each of them is shown in the table below. Although some of these procedures are still ongoing, this has not impeded the official start of the MICHINOEKI business.

Table 4.5.1 Status of Approvals for Implementation

Type of Approvals	Status (15/October)
1. Concession of Land / Consessão de talhão	Submission of Application: 20/April Conducting of Consultation: 27/April Receiving of Internal Approval: end/July Waiting the Provincial Governor's signature
2. Construction Permission /Licença de construção	Submission of Application: 15/May Receiving of Approval: 24/July
3. Project Permission / Aprovação do projecto	Submission of Application: 25/April Receiving of internal Approval for design drawings: end/July Waiting the approval of "Concession of Land" (required to be attached)
4. Electricity Approval	Submission of Application: 13/August Receiving of Approval: 13/August
5. Business License	Submission of Application: end/June Discussing the amount of tax to be charged dependent on the turn over to be achieved

2) Management of MICHINOEKI

Administrative System

The administrative system for the MICHINOEKI as described in 4.4.1 4) and 5) was discussed with ANE and the Nampula District Administration. The following agreement was reached:

ANE:	Owner of the MICHINOEKI Anchilo Facility
Nampula District:	Manager of the MICHINOEKI Anchilo
Forum of Association for Farmers:	Operator of MICHINOEKI Anchilo

On 17th August, an "Opening Ceremony" was conducted attended by JICA, the Governor of Nampula Province and other related organizations. In this ceremony, the facility has been officially handed over from JICA to ANE, and subsequently from ANE to the Nampula District Administration and the Forum of Associations of Farmers.

This is the first experience where ANE collaborates with the local government structure. These organizations have already agreed to have a discussion on the future's management structure of the MICHINOEKI.

Operational System: Staff Training

During the study, staff training has been conducted on several occasions to built capacity for operating the MICHINOEKI. This training included outlining the responsibility for each of the staff members, financial management (book keeping) and business planning. After the opening, the local staff of the study team has been assigned with the task to closely monitor the operation and suggest further improvements where deemed necessary.

Events

A traffic safety campaign was conducted on the 17th July 2007. It was organized by INAV (traffic safety education department the Transit Police, ANE and the Nampula district administration.

On the 13th October 2007 a film was transmitted for the local population utilizing the bicycle container as a big screen. Similar events will be conducted in the future.

4.5.3 Evaluation of the MICHIOEKI Pilot Project

1) Formulation of the aspects for Project Evaluation

Before presenting the results of the evaluation of the MICHINOEKI pilot project, a brief explanation will be presented in Table 4.5.2 about the purpose, outputs and activities of the pilot project.

Table 4.5.2. Narrative Summary for MICHINOEKI Project

Narrative Summary for MICHINOEKI Project	
Overall Goal	The MICHINOEKI Project will contribute to the Regional Development Program as an additional component to the road upgrading project from Nampula to Cuamba
Project Purpose	The MICHINOEKIs a multi-functional facility aimed for drivers to rest and to provide rural income generating opportunities (markets) for the local population thereby improving their quality of life
Outputs	For Rural Farmers and Local Population 1. Provision of income generating opportunities 2. Provision of information/events for improving the quality of life 3. Promotion and sale of bicycles to rural people at affordable prices For Drivers 4. Provision of rest area/facilities for drivers For the future operation of the MICHINOEKI 5. Establishment of a system/methodology for the implementation of the MICHINOEKI 6. Establishment of organizational and operational procedures of the MICHINOEKI
Activities	1-1 Construction of outdoor market 1-2 Establishment of tenant operational organization for sales of rural goods by rural farmers 2-1 Execution of Traffic Safety Campaign 2-2 Installation and operation of public telephone 3-1 Transportation and collection of second hand Bicycles from Japan 3-2 Promotion and sale of Japanese Bicycles at affordable price 4-1 Construction of Parking Area 4-2 Construction of Toilet 4-3 Construction of Rest Facilities including sales of food and snacks 5-1 Clarification on the kind of approval necessary for the construction and operation of MICHINOEKI 5-2 Clarification on the required items and specifications for construction of the MICHINOEKI 6-1 Selection of Staff from the rural population 6-2 Training of Staff for operation and management

According to the PCM and DAC project evaluation method, there are usually 5 (five) items to be evaluated, namely i) Relevance (Overall goal vs. Project Objective), ii) Effectiveness (Project Objective vs. Output), iii) Efficiency (Output vs. Input), iv) Impact and v) Sustainability. However, for this purpose the aim was to evaluate the pilot project with a view to full-scale implementation. The following aspects were evaluated:

"Effectiveness"	Did the project content and components acquire the desired effects
"Efficiency"	Where execution procedures and methods suitable to meet the local needs/environment?
"Viability" for full-scale project	Can the MICHINOEKI be viable and applied on a full-scale?

In order to obtain a wide perspective of opinions, three different organizations (ANE, Nampula District Administration and Anchilo Administrative Post) were selected to participate in the evaluation. The questionnaire and interview surveys were conducted in the period between 5 - 13 October 2007 which was 50 days after the MICHINOEKI opened.

Table 5.4.3 shows the questions presented under each of the 3 evaluation aspects.

Table 4.5.3. Questionnaire

3 Evaluation Items	Questionnaire
"Effectiveness" Did the project content and components acquire the desired effects	1-1 Is the Parking Area effective as a rest place for the drivers?
	1-2 Was the Traffic Safety Campaign recognized as an example of an event function in the MICHINOEKI? Did it motivate to carry out other events?
	1-3 Is the Open Market effective for income generation for rural people?
	1-4 Are the services for selling goods provided in the building effective for drivers and rural people?
	1-5 Is the Toilet a functional facility for drivers?
	1-6 Can the MICHINOEKI be implemented effectively by the road agency?
"Efficiency" Where execution procedures and methods suitable to meet the local needs/environment?	2-1 Is the administrative set up of MICHINOEKI proper/reasonable? (Facility Owner = ANE, Operational Owner= District)
	2-2 Is the Forum (Agricultural Associations) suitable for the operation of the MICHINOEKI because of its public purpose?
	2-3 Was it the proper that Staff of the MICHINOEKI was selected among the rural people?
	2-4 Was the methodology appropriate to rent the outdoor market to rural farmers or associations
	2-5 Was the methodology for purchasing and storing goods appropriate?
	2-6 Was it appropriate to use the profit from the bicycle sales for the initial operation of the MICHINOEKI?
	2-7 Does the function of the MICHINOEKI such as outdoor market , bicycle sales, toilet, open space, and events meet the rural needs?
	2-8 Is the MICHINOEKI project compatible with District and, Provincial Development Plans?
"Viability" for full-scale project Can the MICHINOEKI be viable and applied on a full-scale?	3-1 Can the method for land acquisition for public use be applied to other locations?
	3-2 Can the electricity be supplied in the same way for other MICHINOEKI locations?
	3-3 Is the Financial support program already prepared for the full-scale project?
	3-4 Is the Technical program and the Staff already prepared for full-scale project implementation?
	3-5 Will the Staff who were involved in the pilot project be assigned to the full-scale project?

Each question was responded based on the following rating: A: Very Satisfied/Possible, B: Satisfied/Possible, C: Relatively Satisfied/Possible and D: Unsatisfied/Impossible. The reason and comments to each of the questions was also inquired.

2) Results of Evaluation

Table 4.5.4. shows the results of the evaluation by each of the participating organizations. Note that the areas marked in 'grey' have been left blank as the interviewee had difficulties responding to the question.

Table 4.5.4. Results of the Evaluation

3 Evaluation Items	Questionnaire	Responsible Agency		
		ANE	District	Post
"Effectiveness" Did the project content and components acquire the desired effects	1-1 Is the Parking Area effective as a rest place for the drivers?	C		
	1-2 Was the Traffic Safety Campaign recognized as an example of an event function in the MICHINOEKI? Did it motivate to carry out other events?	B	D	B
	1-3 Is the Open Market effective for income generation for rural people?	C	C	A
	1-4 Are the services for selling goods provided in the building effective for drivers and rural people?	B	B	A
	1-5 Is the Toilet a functional facility for drivers?	B	A	A
	1-6 Can the MICHINOEKI be implemented effectively by the road agency?	D	A	B
"Efficiency" Where execution procedures and methods suitable to meet the local needs/environment?	2-1 Is the administrative set up of MICHINOEKI proper/reasonable? (Facility Owner = ANE, Operational Owner= District)	B	B	A
	2-2 Is the Forum (Agricultural Associations) suitable for the operation of the MICHINOEKI because of its public purpose?	B	A	A
	2-3 Was it the proper that Staff of the MICHINOEKI was selected among the rural people?	B	B	B
	2-4 Was the methodology appropriate to rent the outdoor market to rural farmers or associations		B	C
	2-5 Was the methodology for purchasing and storing goods appropriate?		C	C
	2-6 Was it appropriate to use the profit from the bicycle sales for the initial operation of the MICHINOEKI?	A	A	A
	2-7 Does the function of the MICHINOEKI such as outdoor market , bicycle sales, toilet, open space, and events meet the rural needs?	B	B	B
	2-8 Is the MICHINOEKI project compatible with District and, Provincial Development Plans?		D	
"Viability" for full-scale project Can the MICHINOEKI be viable and applied on a full-scale?	3-1 Can the method for land acquisition for public use be applied to other locations?	A	A	A
	3-2 Can the electricity be supplied in the same way for other MICHINOEKI locations?	A	C	
	3-3 Is the Financial support program already prepared for the full-scale project?	D	B	
	3-4 Is the Technical program and the Staff already prepared for full-scale project implementation?	D	A	
	3-5 Will the Staff who were involved in the pilot project be assigned to the full-scale project?	B	A	A

1. Effectiveness

1-1 ANE's answer "C" means that the parking area must be increased at least twice the size of the pilot one. They recommended that the entrance and parking lot should be suitable for trailers.

1-2 District's answer "D" means that this type of event is not enough for educating drivers. It must be targeted to driver's and conducted more frequently. The Administrative Post hopes that they will have opportunities to run a similar type of event by themselves.

1-3 ANE and the District evaluated this question as "C In their opinion the idea is good but they are not satisfied with the present status. According to their observation, it has not matured yet. The Administrative Post rated this question as "A", pointing out the importance of restricting the market to 'only local products' to encourage the local rural economy.

1-4 Evaluated a high score because the shop improves especially the rural people's standard of life.

1-5 They evaluated a high score but they consider it important to include room facilities (motel) and more promotion is required.

1-6 District and Administrative Post are satisfied. ANE is not satisfied. ANE suggested Food/Snack/Takeaway provisions, rooms and a Gas Station as future MICHINOEKI facilities according to its capacity.

There are some aspects that where evaluated negatively but these do not represent the contents/components of the project itself, but rather contents/methods of each function. Therefore, the study team concludes that the contents/component of the project is effective for full-scale implementation.

2. Efficiency

2-1 All evaluated high scores but the District raised the issue of having the opportunity to further discuss the ownership of the facilities.

2-2 All evaluated high scores. The Administrative Post pointed out that if the MICHINOEKIs located near their offices, the Administrative Post would be capable of operating the facility. If located outside it would be better operated by a forum. The District pointed out that the problem is the limitations of their capacity. They would need capacity building support to operate a MICHINOEKI.

2-3 All of them evaluated "B". The Administrative Post pointed out that staff selected must be persons who respect the forum.

2-4 The Administrative Post pointed out that the Tax levies should be reduced in order to promote the involvement of local farmers. The District requested the capacity building for staff to operate the MICHINOEKI more efficiently.

2-5 They all evaluated "C". Problems identified are transport cost and limited staff capacity in the area of business management.

2-6 All of them marked "A". No one doubted this system.

2-7 They all evaluated "B". The only problem raised is operational management by staff.

2-8 The District answered that the MICHINOEKI will be included into the next District Development Plan.

Most of the questions raised with respect to the introduction of the MICHINOEKI concept in Mozambique were evaluated positively. Especially, the bicycle promotion centre is seen as not only a way to promote the use of the bicycle in the rural area, but also an efficient method for income generation during the initial stages of operation. All participating organizations, pointed out that the capacity building of staff should be taken into consideration.

3. Viability

3-1 All of them marked "A". The land acquisition for pubic facilities can be applied easily.

3-2 They all evaluated that it is possible, but some of the areas will have difficult access to electricity. One of the projects ("FUNAE") for solar power promotion is now starting. This could be helpful for the MICHINOEKI located in the rural areas.

3-3 ANE stated that the MICHINOEKI project should be included as part of the Nampula-Cuamba road improvement project as soft component.

3-4 ANE said it is difficult to do it by themselves. On the other hand, the District said it is possible that their pubic infrastructure department can handle the planning and design.

3-5 All of them said it was possible.

All participating organizations evaluated that the full-scale implementation of the MICHINOEKI project as part of the Nampla - Cuamba Road upgrading is viable except the available financial recourses.

4.6 Recommendation & Lesson Learned

According to the results of the evaluation as mentioned above, the study team recommends the following;

1. The contents/components of the MICHINOEKI which are i) parking lot, ii) Open Market, iii) Sales of Goods to rural people and drivers, iv) Pubic Toilet and v) Event Space are evaluated to be effective for full-scale project implementation, and should be part and parcel of future MICHINOEKI's.
2. The Administrative System (ANE: Owner of Facility, District: Owner of Operation) was confirmed to be efficient. The same system should be used for the full-scale project. The Financial recourses are expected to be provided by the soft component of the Nampula - Cuamba road improvement project.
3. The Bicycle promotion centre should be integrated into the MICHINOEKI project to promote the use of the bicycle for rural people and also to generate income for the operation of the road side station.

What are the lessons learned from the experience of the pilot project?;

1. Technical assistance and capacity building is required for the operational staff of the MICHINOEKI. Most farmers are not business minded.
2. Promotion and publishment of the MICHINOEKI concept is important for the rural areas in order to have the farmers fully recognize and understand the MICHINOEKI's objectives and be involved in the outdoor market activities.
3. The staffs of MICHINOEKI have installed the community phone and started constructing another rest space under their decision. The community phone has been confirmed as a one of a useful public purpose by the results of operating records. It is recommended that the community phone should be provided into future MICHINOEKIs.

Chapter 5 Roadside Station Plan

Chapter 5 Roadside Station Plan

5.1 Introduction

What is a Roadside Station?

Since 1993, in Japan, rest facilities called Roadside Stations ”MICHINOEKI” have been established on major roads. These integrate parking areas, restrooms, information facilities and community facilities provided by local governments.

The Roadside Station ”MICHINOEKI” functions not only as a rest area for drivers but also as an information transmission base and as a location to interact with local people through the sale of local products and organizing events. They are highly regarded and recognized as a communication space where local initiatives can be utilized. There are close to 800 road side stations at present in Japan.

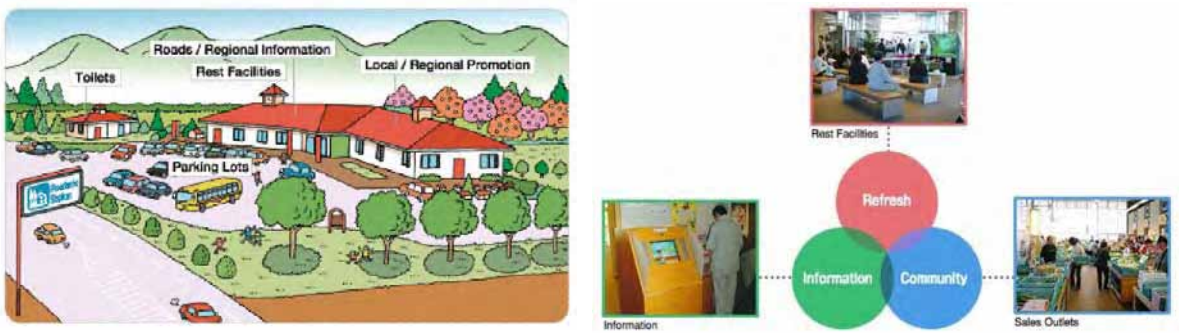


Figure 5.1.1. Concept of Roadside Stations

Reference: 2006, Road Bureau, Ministry of Land, Infrastructure and Transport in Japan

5.2 Concept of Roadside Stations

The World Bank expects a multiplier effect from the Roadside Stations creating benefits for marketing, production works, technical education, tourism, social participation and public services such as health and sanitation.

The World Bank produced a guideline on road side stations dated July 22, 2004. This guideline has brought together more than ten years of successful Japanese experience and selected practical work in other countries in East Asia and Africa. The guidelines discuss the MICHINOEKI concept adjusted to the specific context of developing countries and provide advice on the planning, design and operation of these facilities.

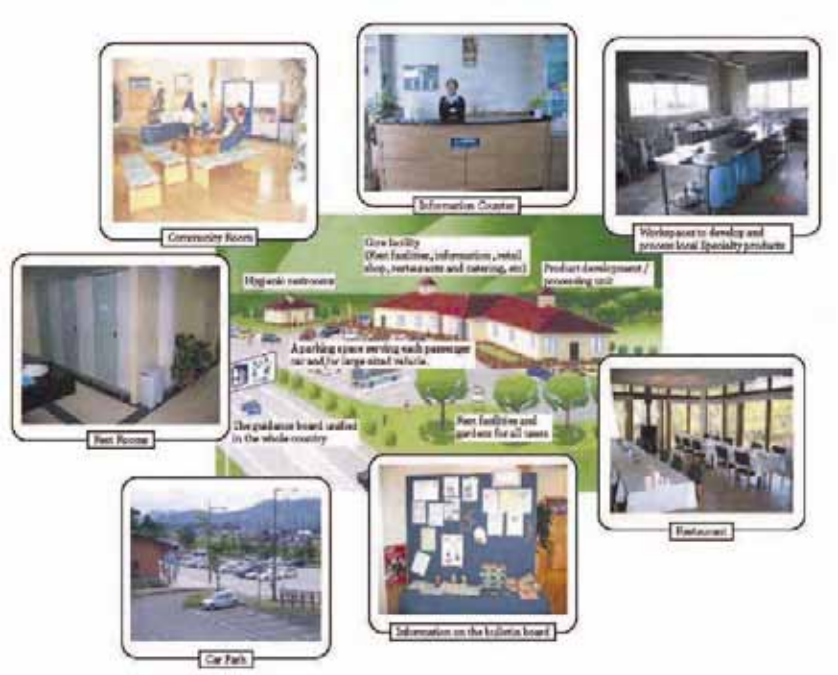


Figure 5.2.1. Concept of Roadside Stations by The World Bank

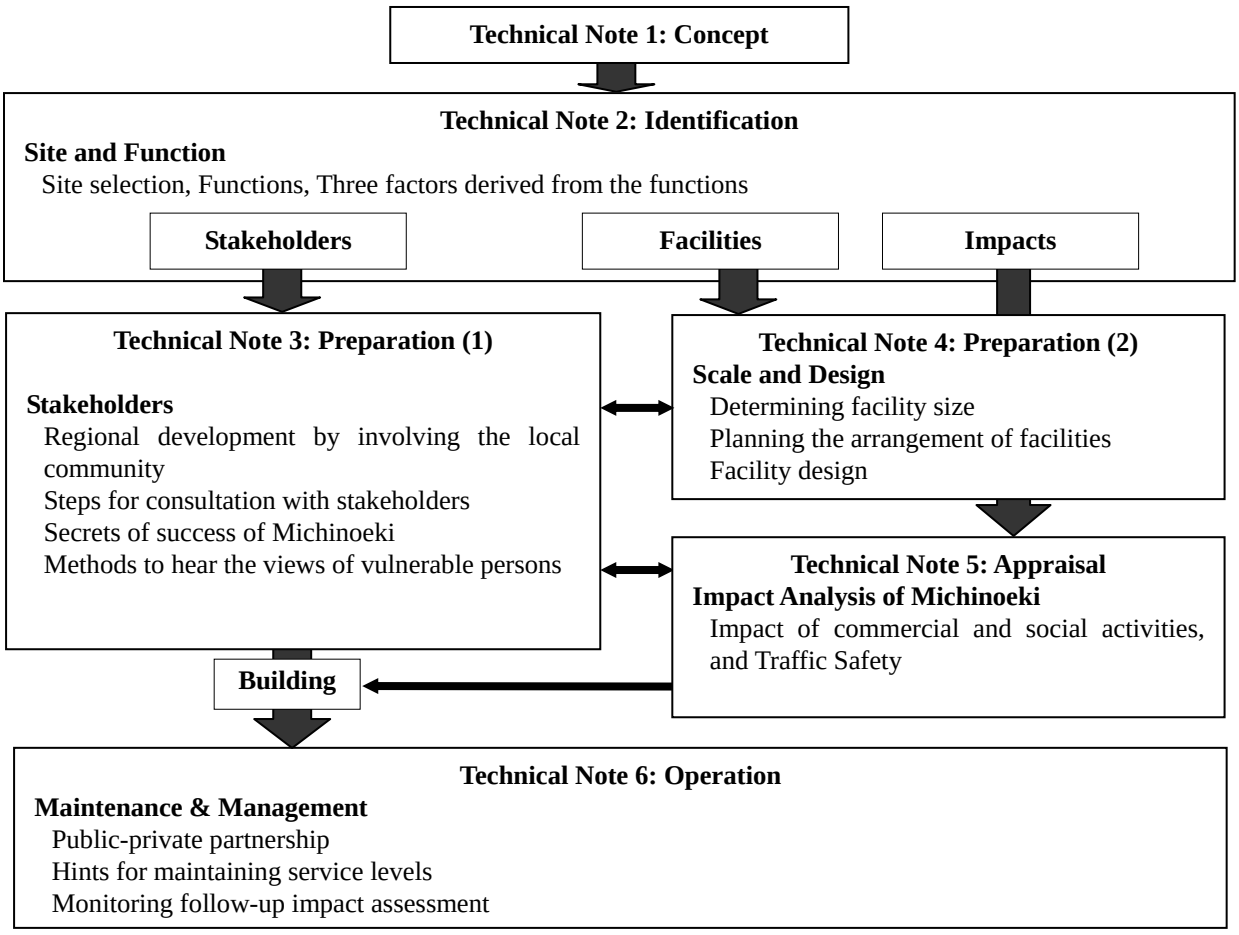


Figure 5.2.2. Guideline for Roadside Stations by the World Bank

5.3 Current Situation along the Study Road

The study road is unpaved and the road condition for the section from Malema to Ribaue is poor. In the dry season, it takes approx. 6 hours and 30 minutes to travel from Nampula to Cuamba. During the rainy season, November to March, there are major transitability problems.

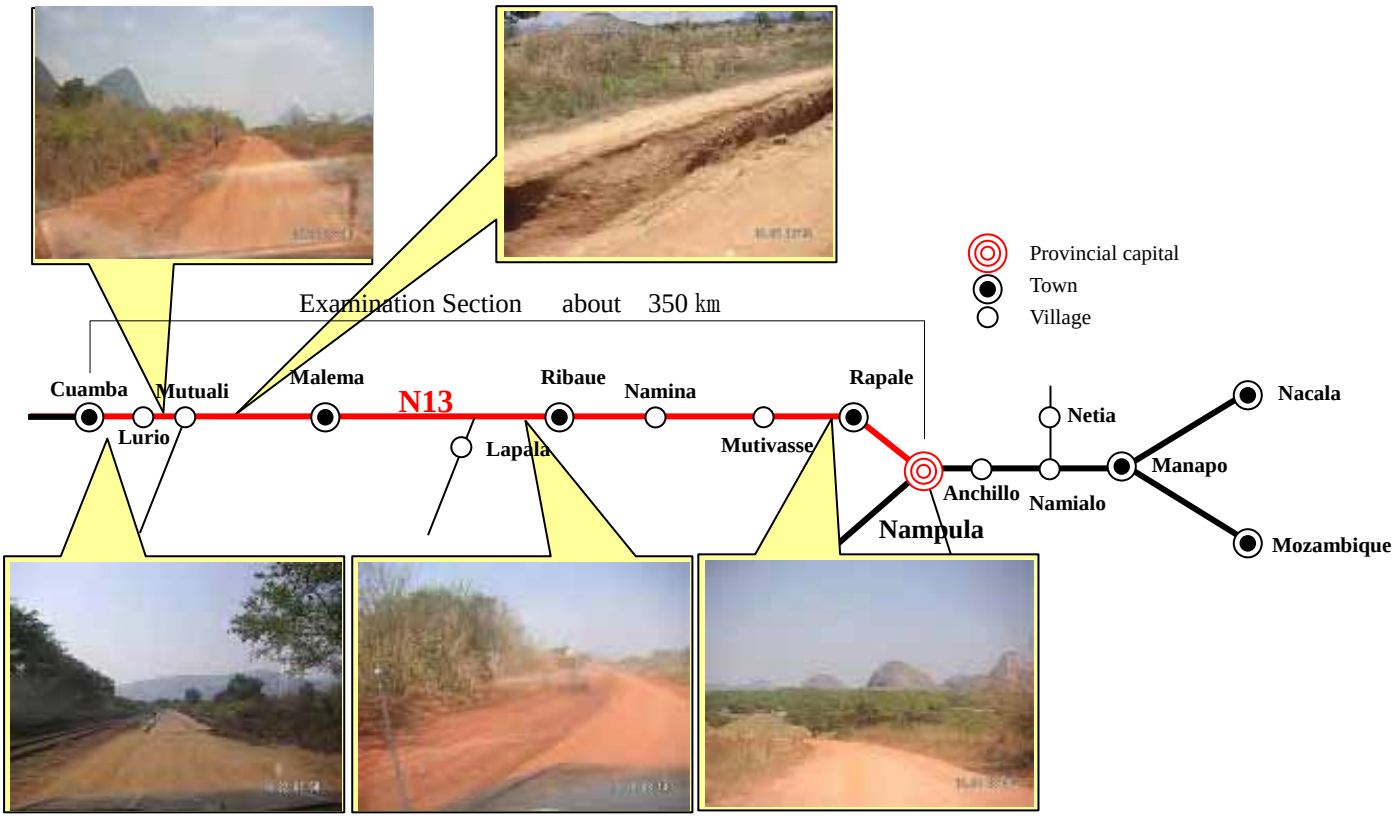


Figure 5.3.1. Line Diagram of the Study Road with sample photographs

With a view to the implementation of the Roadside Station "MICHINOEKI" (Refer to Table 5.3.1) the current situation is further characterized by:

1) Public and private facilities such as governments, schools, hospitals, churches are concentrated in the cities and towns together with electricity supply, wells, markets and petrol stations. There are no facilities in the villages and there are few local markets. Almost all of the villagers are small scale farmers. The main farm products are cotton, beans, cassava, maize, onions, potato and tobacco. Some people engage in activities related to the sale of firewood, charcoal and animal husbandry (such as chickens). Some people sell chickens, maize, onions, and potatoes at the roadside directly to travelers.
2) Between towns, inhabitants, and to a lesser extend travelers, rely on importable water sources.
3) Pedestrians and motorized vehicles are intermingled on the road that undermines road

safety.

Table 5.3.1 Condition of facilities

Functions	Cuamba	Lurio	Mutuali	Malema	Ribaue	Namina	Mutivasse	Rapale	Nampula
Local Government	○	—	—	○	○	—	—	—	◎
Hospital	○	—	○	○	◎	—	—	—	◎
Petrol Station	○	—	—	○	○	—	—	—	◎
Rest House	○	—	—	○	—	—	—	—	◎
Market	○	—	—	○	○	○	—	○	◎
School	○	—	—	○	○	—	—	—	◎
Other facility	—	—	Monument Cotton Company	—	—	—	—	—	—

Key ◎Very effective ○Effective

5.4 Application of the Concept of Roadside Stations on the Study Road

5.4.1 Appropriate Location for Roadside Station

The main objective of the Roadside Station has to be clearly identified as this will significantly influence its appropriate geographical location between highways and town/village centers. A location close to a town may offer convenience and a synergistic effects but also may generate problems such as noise, garbage, and so on. Furthermore, for a Roadside Station "MICHINOEKI" that combines market functions with transportation terminal functions, it may be desirable to select a site that allows for expansion if necessary.

The main objectives for the Roadside Station "MICHINOEKI" are as follows:

First, drivers and travelers need a place to rest, buy gasoline, and maintain their vehicles. Secondly, market and restaurant facilities are used by drivers, travelers, and local residents. Thirdly, the Roadside Station "MICHINOEKI" provides public services such as water supply, public sanitation, and health care including HIV/AIDS care, education and training, and cultural activities. As many people gather at a transportation-related facility such as a Roadside Station "MICHINOEKI", it has a fourth function as well, that of a transportation terminal. Therefore, the main objectives of a Roadside Station "MICHINOEKI" can be classified into the following four categories:

- Rest—Providing highway users with a clean, comfortable rest area
- Market—Providing a location for direct sale of products (and possibly for processing local products to generate added value)
- Terminal—Providing terminal functions for public transport.

- Public Service—Providing public services that are needed by local residents, as well as by highway users.

Site Type	Examples of main objectives			
	Rest	Market	Terminal	Public Service
Between towns (Town – Site – Town)	☼ Rest point for travelers from town to town.	○ If local products can be gathered, new concentrations may emerge. This may also lead to development in the land surrounding the michinoeki.	Δ Although not near a town, this type of site may be effective if it is an important transportation node or near major interchanges.	Δ Few users other than travelers can be expected.
Entrance to a town (Site – Town)	○ Rest point just before entering an urban area.	☼ Serving as the face of a town, with a market presenting the town's products.	☼ Important transportation nodes are often in towns, and this type of site is effective in such cases.	○ Both travelers and community residents have easy access to services.
Town center (Town – Site)	Δ A town center should not be used as a rest area.	☼ Serving as the face of a town, with a market presenting the town's products.	○ Important transportation nodes are often in towns, and this type of site is effective in such cases.	☼ Both travelers and community residents have easy access to services.

key: ☼ Excellent ○ Good Δ Questionable

Figure 5.4.1. General compatibility of types of sites with their main objectives

Reference: 2004,Guidelines for Roadside Stations "MICHINOEKI" by the World Bank

5.4.2 Role of Roadside Stations

Roadside Stations each offer its specific advantages whilst making up for each other's shortcomings. Roadside Station facilities provide well-balanced direct benefits in the three areas of economic, social and road transport needs. For a society to develop fully, the proper balance in infrastructure building must be ensured.

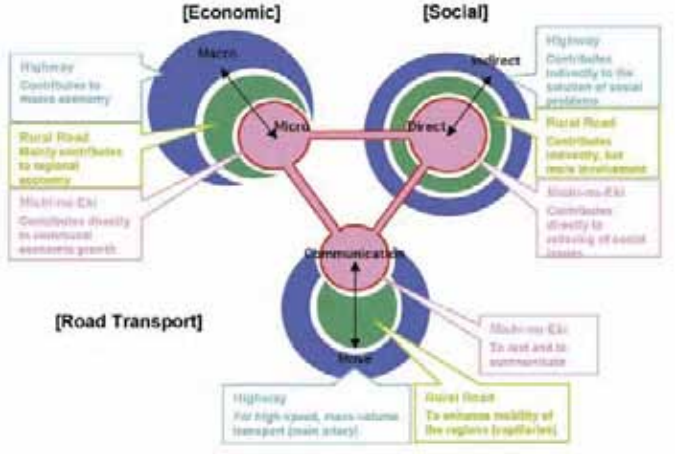


Figure 5.4.2. Roads and their benefits

5.4.3 Institutional Arrangements for Installation and Operation

There are two areas to consider; the Road Reserve adjacent to the road and the Local Area outside the Road Reserve Area. Parking and toilet facilities should be established in the Road Reserve. Community spaces such as restaurants and markets are located in the Local Area, because it is prohibited to build structures in the Road Reserve in Mozambique.

Standard Section (Unit: m)

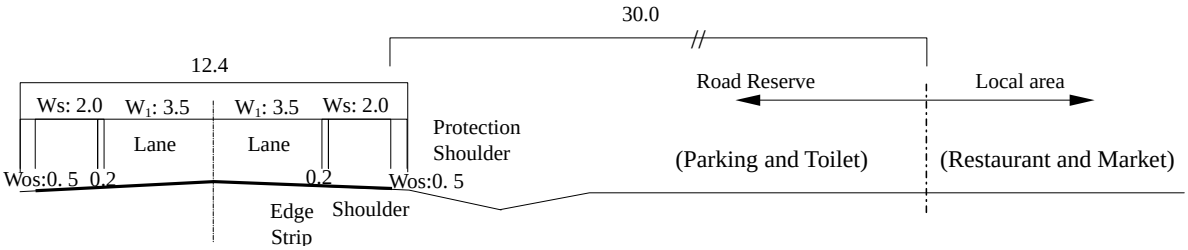


Figure 5.4.3. Arrangement for Installation

Reference: : National Road Directorate for Roads and Bridges (1991), Report on Feasibility

The institutions operating each of the facilities are shown below.

Table 5.4.1. Institution Arrangement for Operation

Item	Road Reserve	Local area
Service and Facility	Parking, Toilet and Septic Tank	Community Market, Restaurant, Well
Establishment	ANE	District government
Management	ANE	District government
Consideration	Clean, Sanitary, Safety, Comfort	

5.4.4 Implementation Plan for Future Roadside Station (MICHINOEKI)

1) Proposed Location for the Roadside Station (MICHINOEKI) on the Study Road

As the results of site survey conducted between 8 to 10 October 2007, the study team identified the following proposed locations for future MICHINOEKI on the study road. Table 5.4.2 and Figure 5.4.4 show their location. In this site survey, the following criteria for site selection have been taken into account;

- Availability for Land Acquisition
- Availability of Electricity and Water Resources
- Availability of Agricultural Products and Farmers Associations

As the MICHINOEKI is a driver's facility, their intervals shall be taken as approximately 50km or one hour's drive.

The Study team visited each local administration and discussed the availability for each of these locations. All locations have been confirmed as being available for public facilities.

Table 5.4.2. Proposed Location for future MICHINOEKI

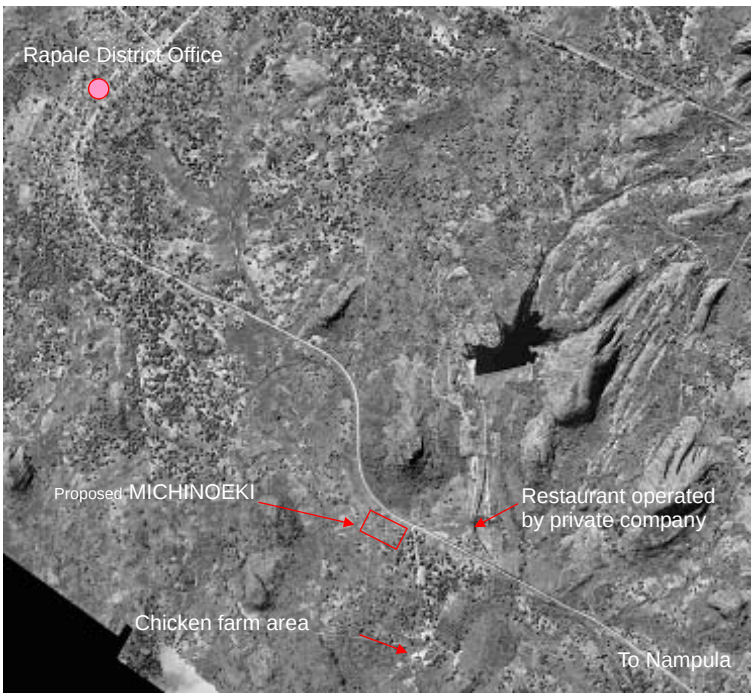
No	Name	Location		KP	Longitude / Latitude	
1	Rapale	District	3.8km from Rapale Adimin.	13+700	15 02.942 S	39 08.361 E
2	Mutivaze	Post	1.0km from Post	37+700	15 00.160 S	38 57.774 E
3	Namina	Post	2.0km from Post	76+000	14 57.018 S	38 40.489 E
4	Ribaue	District	2.0km from Ribaue Admin.	130+200	14 57.651 S	38 19.297 E
5	Zimbabwe	Post (Iapala)	8.0km from Post	161+500	14 58.371 S	38 03.713 E
6	Malema	District	10.5km from Malema Admin.	225+500	14 56.804 S	37 30.160 E
7	Mutuali	Post	1.3km from Post	279+600	14 53.030 S	37 01.500 E
8	Cuamba	Municipal	3.5km from Cuamba Adimin.	341+500	14 48.214 S	36 34.567 E

Figure 5.4.4. Proposed Location for future MICHINOEKI

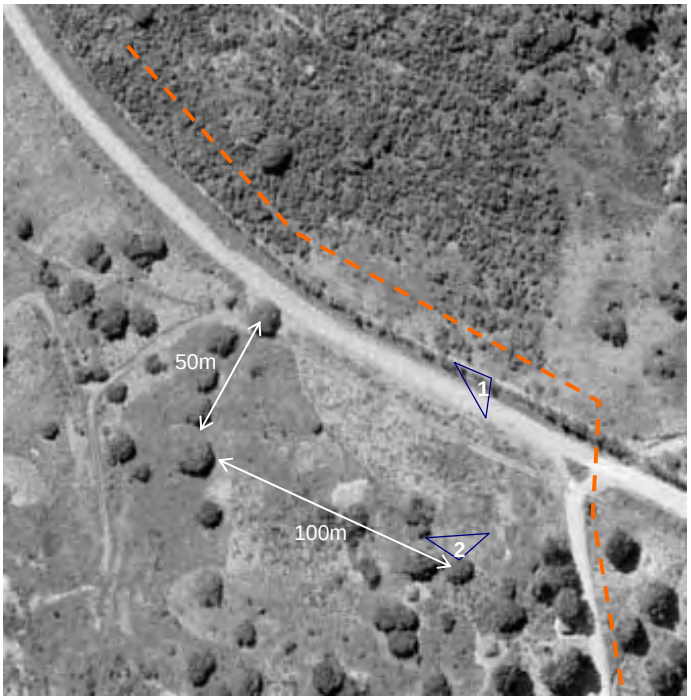
Note: The locations for the MICHINOEKI are numbered from the Nampula side

The following pages show detailed information and characteristics for each location.

No.1 Rapale District (13+700) 3.8km from Rapale Adiministration Office 15 02.942 S 39 08.361 E



- Land is used by neighboring residents but not registered.
- Farmers are not yet organized in Associations, however, farming production is substantial.
- There are small scale quarries available near this site.



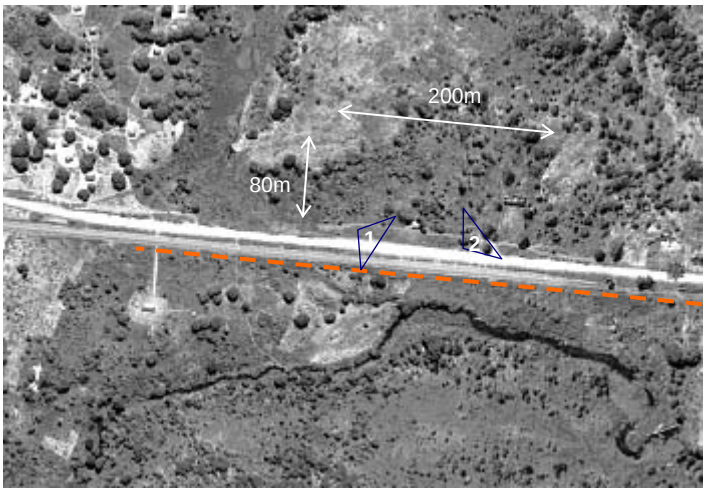
Proposed area for MICHINOEKI
Electricity Line
View point for Photo

Photo1

Photo2

Site availability was confirmed by Technician of Land & Infrastructre Dept. Nampula District (10. Oct. 2007)

No.2 Mutivaze (Post) (37+700) 1.0km from Post Administration Office 15 00.160 S 38 57.774 E



Proposed area for MICHINOEKI
Electricity Line
View point for Photo

- Land is not occupied
- Railway Station is located at opposite side of the road. The location for the MICHINOEKI has good opportunities to provide for a transfer point between road and railways.
- Demolished building used as a market, but longer (not clear!!!) in use
- There are associations and for which have the capacity to operate a MICHINOEKI.

Photo1

Photo2

Old Market (not used now)

Site availability was confirmed by Head of Mutivaze Administrative Post (8. Oct. 2007)

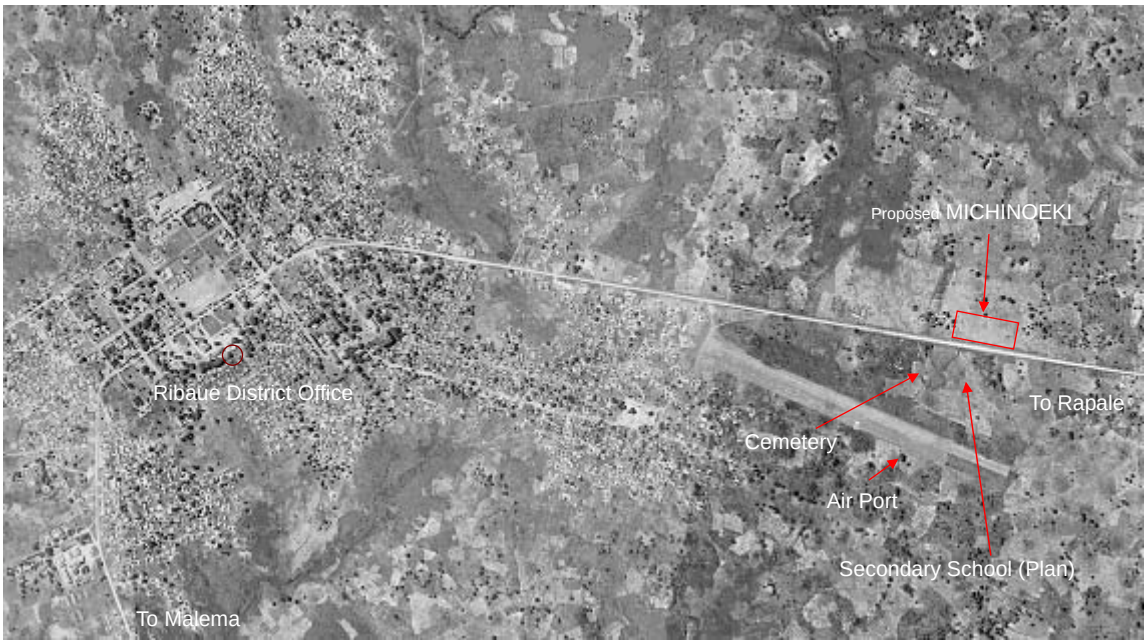
No.3 Namina (Post) (76+000) 2.0km from Post Administration Office 14 57.018 S 38 40.489 E

Proposed area for MICHINOEKI
Electricity Line
View point for Photo

- Land is not occupied
- There are associations which can operate the MICHINOEKI, however capacity building of staff will be required.

Site availability was confirmed by Head of Namina Administrative Post (10. Oct. 2007)

No.4 Ribaue (District) (130+200) 2.0km from District Administration Office 14 57.651 S 38 19.297 E

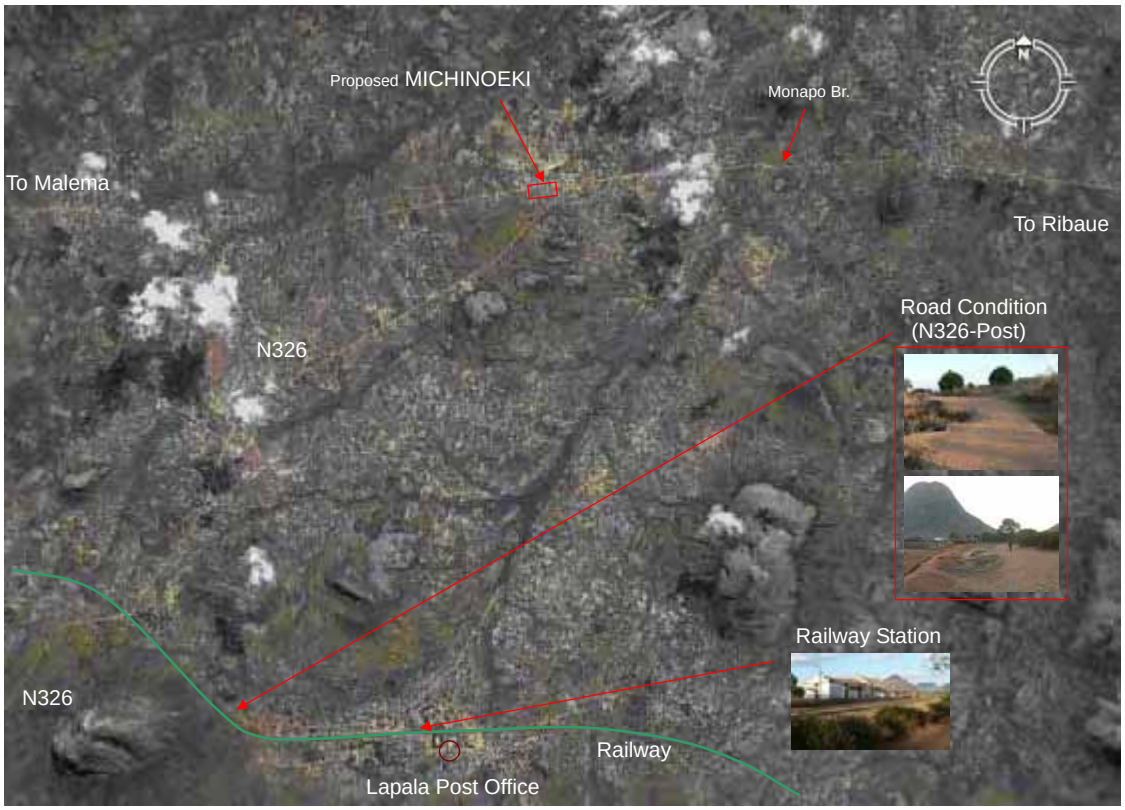


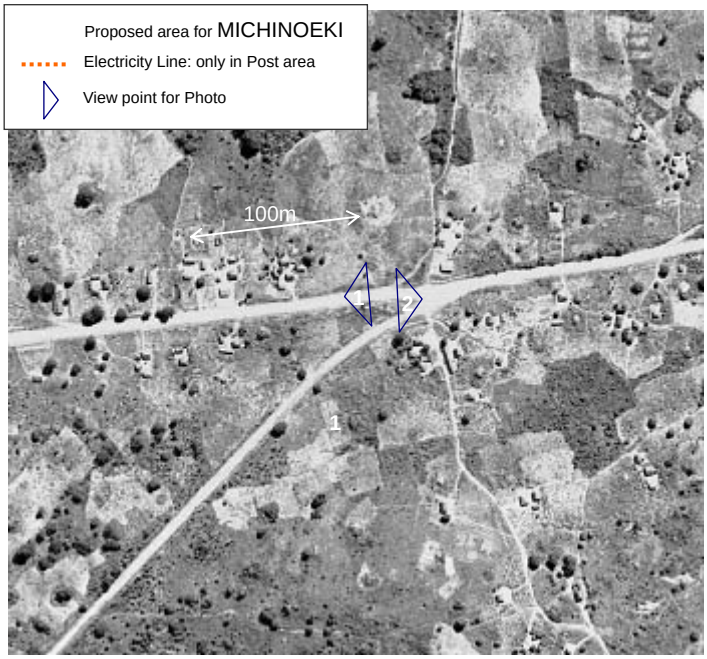
Proposed area for MICHINOEKI
Electricity Line
View point for Photo

- Land is not occupied
- There are associations which can operate the MICHINOEKI.
- At the opposite side of road, a new secondary school is planned.
- Note that the proposed height of the road is 3.5m higher than the surrounding ground level.

Site availability was confirmed by Director of Infrastructure, Ribaue District (10. Oct. 2007)

No.5 Zimbabwe (Lapala Post) (161+500) 8.0km from Post Administration Office 14 58.371 S 38 03.713 E

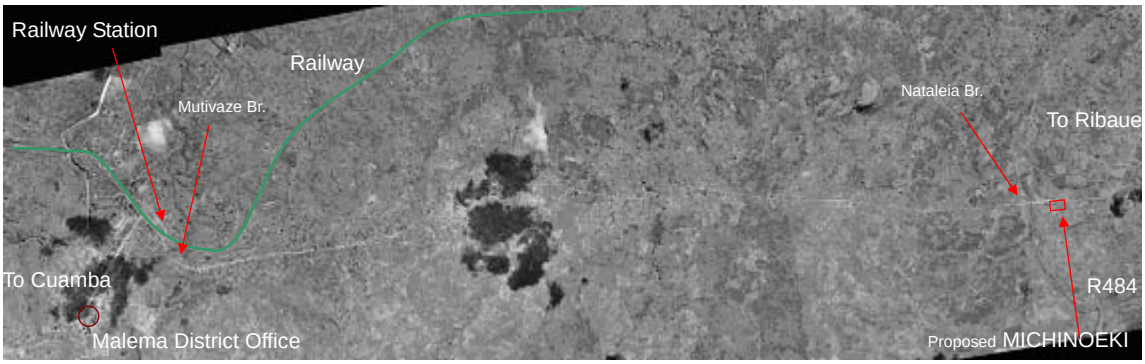


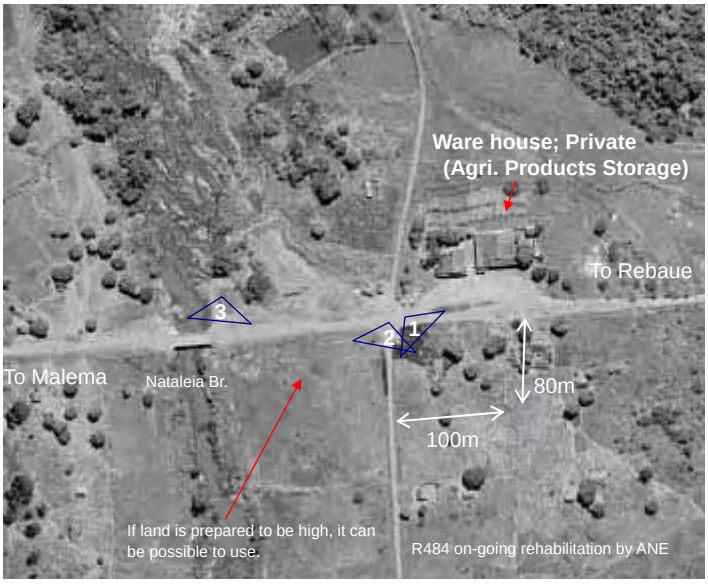


- Land is not occupied. Opposite side of the land is in use by a Portuguese citizen
- There was a bus connection between the Administrative Post and this location, but this is no longer operated due to the bad road condition.

Site availability was confirmed by Chef of Lapala Post (8. Oct. 2007)

No.6 Malema (District) (225+500) 10.5km from District Administration Office 14 56.804 S 37 30.160 E





Proposed area for MICHINOEKI
Electricity Line: only in Malema post area
View point for Photo

- Land is available for use as a MICHINOEKI.
- There is a private warehouse for agricultural produce where farmers can bring their products for temporary storage and subsequent sell to retailers in Malema
- Malema's District Administration has a plan for a new market at the same location, but it is still up for further discussion.
- The location is strategic at the junction with the R484 and the road to Lalaua
- One of the problems is the electricity. It is only available in Malema built up area (at more than 10km distance from the site).
- The opposite site of this location can also be used for the MICHINOEKI but it will be nessesary to fill the land.

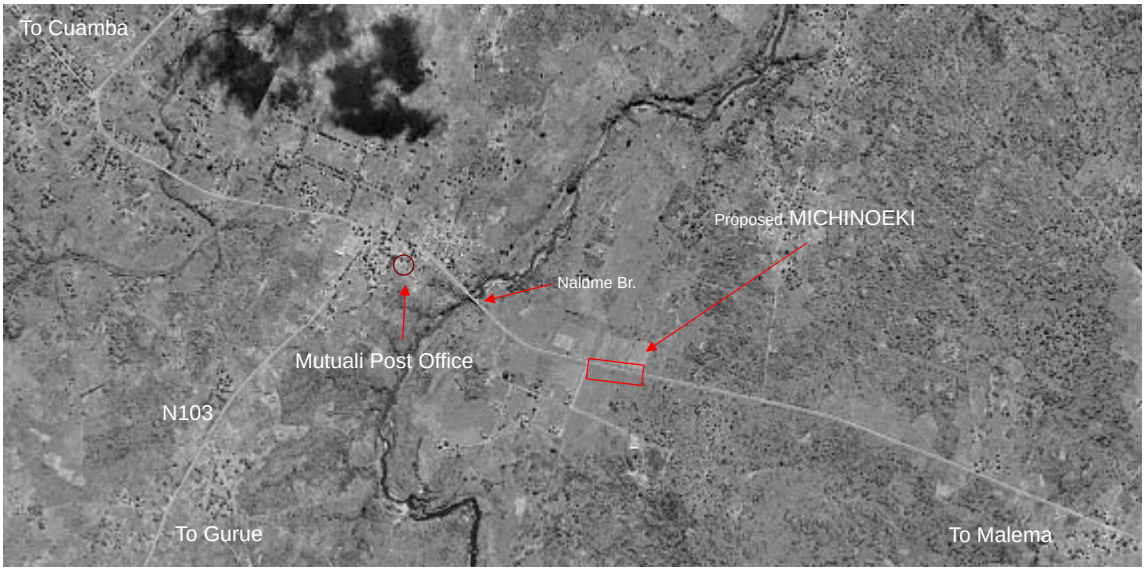
Photo1

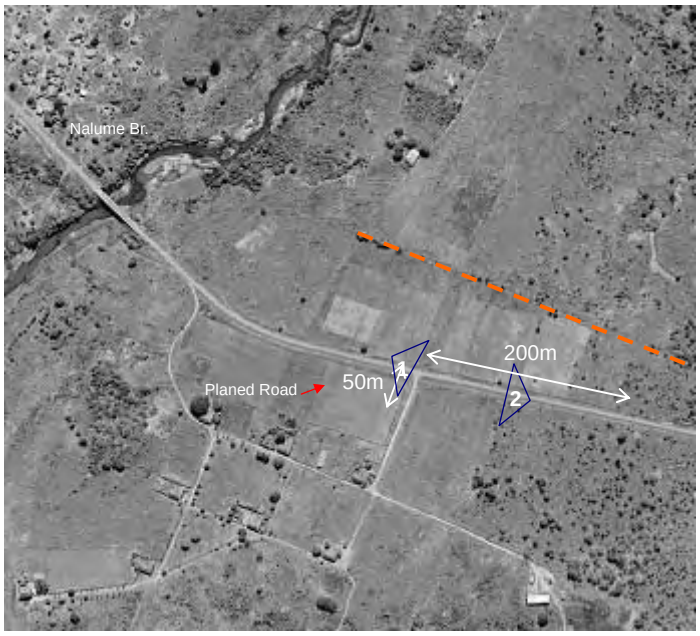
Photo2

Photo3

Site availability was confirmed by Chief Secretary of Malema District Office (9. Oct. 2007)

No.7 Mutuali (Post) (279+600) 1.3km from Post Administration Office 14 53.030 S 37 01.500 E





- At the junction of the N13 and the N103, the land is occupied by the District Administration (Administrative Post) which makes it difficult to be used for MICHINOEKI.
- The MICHINOEKI can only use the area generated by the proposed realignment of the Study road. Other areas around this site are occupied by the IIAM, Ministry of Agriculture.
- There is a railway station located 8km west from the MICHINOEKI location. To utilize the relationship between the railway line and the road, a 1km community road is required to be rehabilitated.

Proposed area for MICHINOEKI
Electricity Line
View point for Photo

Site availability was confirmed by Chef of Mutuali Post (9. Oct. 2007) (

No.8 Cuamba (District) (341+500) 3.5km from District Administration Office 14 48.214 S 36 34.567 E

Proposed area for MICHINOEKI
Electricity Line
View point for Photo

- The MICHINOEKI can be located in the area between the railway line and the proposed realigned Study road.
- As the area can be easily controlled, the municipal authority is willing to reserve the area for the MICHINOEKI and prohibit any private building.
- There is enough land available which makes it easy to extend the area to either side of the planned Study road.

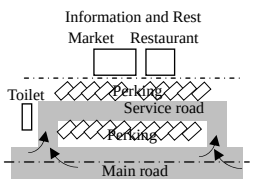
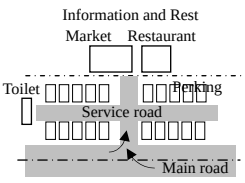
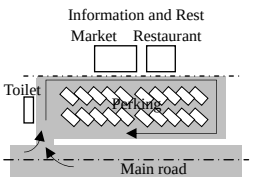
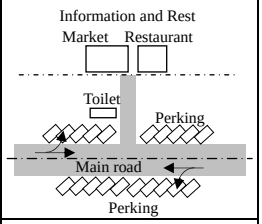
Site availability was confirmed by Mayer of Cuamba Municipal (9. Oct. 2007)

2) Layout of the Roadside Station

Layout arrangement considering the specific conditions in Mozambique and the site conditions are as follows:

- Right turn lanes are not needed on the main road because of the low traffic volume.
- Information and rest areas, restaurant and market facilities are planned outside the road reserve.
- Parking and toilet facilities are inside the road reserve.

Table 5.4.3. Comparison layout for Roadside Station

Item	Plan 1	Plan 2	Plan 3	Plan 4
Sketch				
Outline	*2 vehicle crossings *service road on one side.	*1 vehicle crossing. *parking on one side.	*1 vehicle crossing *service road around the parking area.	*No vehicle crossings * Parking on both sides of the main road.
Merits	Easy to park.	Reduced impact on main road traffic.	Reduced impact on main road traffic.	Easy to park for both lanes.
Demerits	Affects the main road traffic.	Not easy to park.	Concentration in the vehicle crossing	Causes pedestrians to cross the main road.

Considering safety at the entrance of the parking, Plan1 is relatively safer than the others lay outs. In the design stage of the MICHINOEKI, these factors will be taken into consideration . Figure 5.4.5. shows the similar road side facility layout in the Tete province. Figure 5.4.6. shows the recommended layout plan for MICHINOEKI.

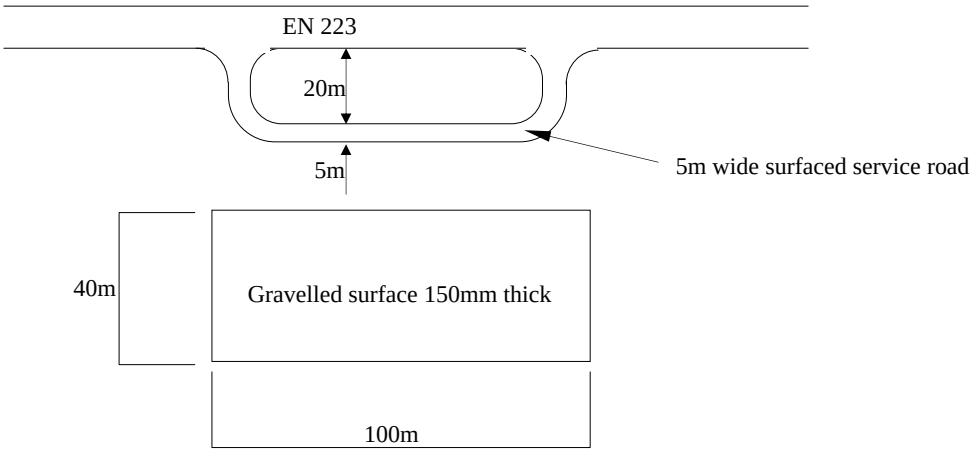


Figure 5.4.5. Market space on EN223 (MUSSACAMA AND- COLOMUE)

Note: Upper layout of the parking area, lower layout represents the total area of land preparation for the facilities
Reference: Contract For The Rehabilitation Of Road En223 Between Mussacama And Colomue In Tete Province-Mozambique

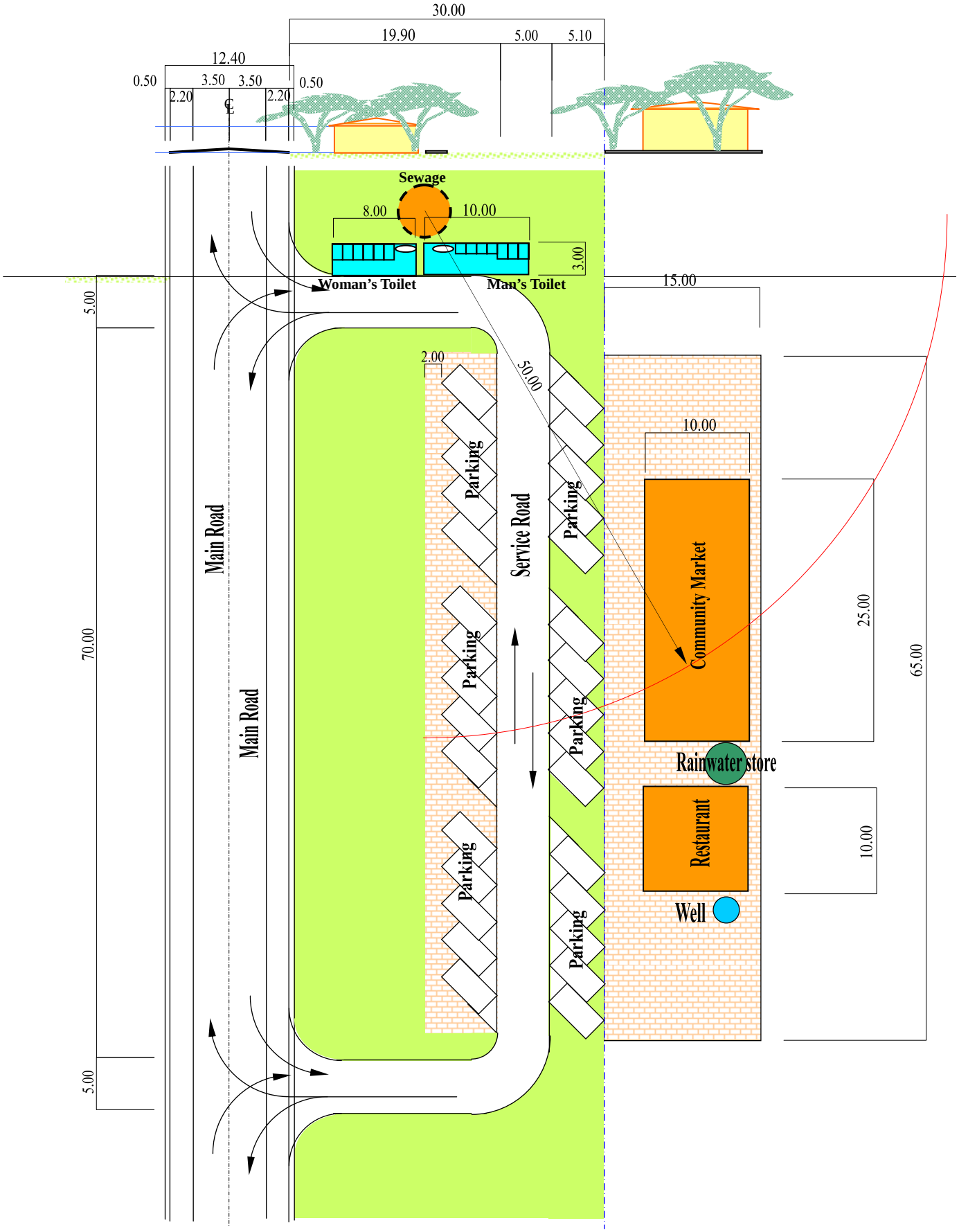


Figure 5.4.6. Layout design for a Roadside Station "MICIHIONEKI"

5.5 Recommendations

With regard to the Study Road, we suggest the following concepts and elements to be applied for a Roadside Station.

Table 5.5.1 Four Concepts and Eight Elements

Four Concepts	Eight Elements
1. Clean 2. Sanitary 3. Safety 4. Comfort	1. Rest facility 2. Clean Water 3. Sanitary Toilets 4. Take away food sold under hygienic conditions (Restaurant, Market) 5. Road Safety 6. Information 7. Cooperation/Corroboration Activities between MICHINOEKIs & Local 8. Local Activities

Roadside Stations have contributed to the local development in Japan. We expect a similar impact along the Study road in Mozambique.

Through the pilot project in MICHINOEKI Anchilo, procedures for implementation, organization and operation have been tested which have provided important lessons learnt for its establishment in the Mozambican context. Especially, it is recommended that community phone should be installed through the scheme of Public Private Partnership (PPP) as a one of the MICHINOEKI's facilities. It helps much improvement for communication tools among rural people.

Full scale implementation of the MICHINOEKI concept at the eight proposed locations on the study road is recommend as soft component of the main project for road improvement, based on the layout arrangements as shown in 5.4.4. of Main Text.

Chapter 6 Emergency Works As Pilot Project

Chapter 6 Emergency Works As Pilot Project

6.1 Background

The Emergency works (hereafter described as "the Works") is a component of the pilot projects focusing on the rehabilitation of feeder roads and/or community infrastructures, which are strongly related with the regional development program. The works mainly aims that an effectiveness of small scale rehabilitation for community infrastructures are to be experimentally examined when it is undertaken within the framework of the regional development program. And secondary, specific data & information of construction as well as procurement are to be updated and compiled to feedback to the Feasibility study.

The works were selected from the list of the prioritized projects, which are proposed in the Short-term Regional Development Policy, in accordance with the following criteria:

- ✓ Urgency
- ✓ Local Needs
- ✓ Economic Development Effect
- ✓ Immediate Effect
- ✓ Conformity to the JICA Pilot Project Scheme

Subsequent to the selection of the Works, an appropriate site, scope and magnitude of the work were duly examined together with ANE as well as the local governments for an effective implementation under the JICA's local procurement scheme.

Based on a technical examination as well as a needs assessment, the rehabilitation work for the existing community roads were carried out in the center of Ribaue district, which is a hub town in the region and provides public services both for education and for medical attentions.

6.2 Outline of the Works

The works are to rehabilitate the Hospital Road and the School Road 1 and 2 in Ribaue, Nampula Province and comprises the following tasks:

- ✓ Road Pavement with a Single Chip Seal
- ✓ Installation of the Pedestrian Way and Rehabilitation of the Central Island (Strip)
- ✓ Installation of the Drainage and Cross Culvert

The project road is 0.98 km in length and composed of the following 3 sections:

- ✓ School Road 1 Section Length = 325 m
- ✓ School Road 2 Section Length = 325 m
- ✓ Hospital Road Section Length = 330 m

The figure below indicates the location of the project road and each section.

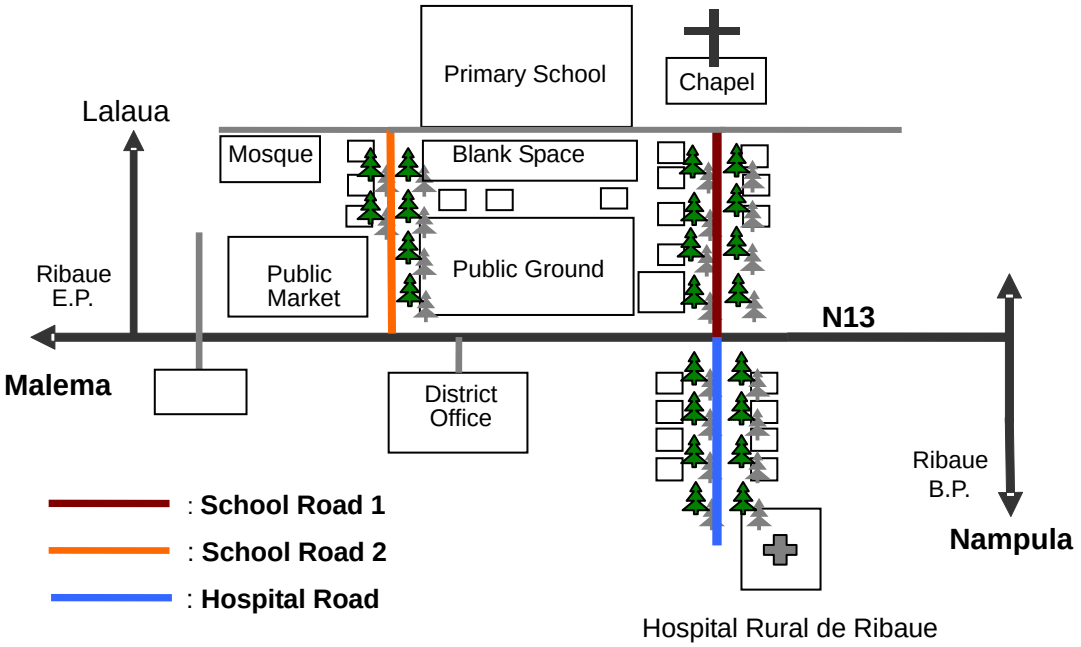


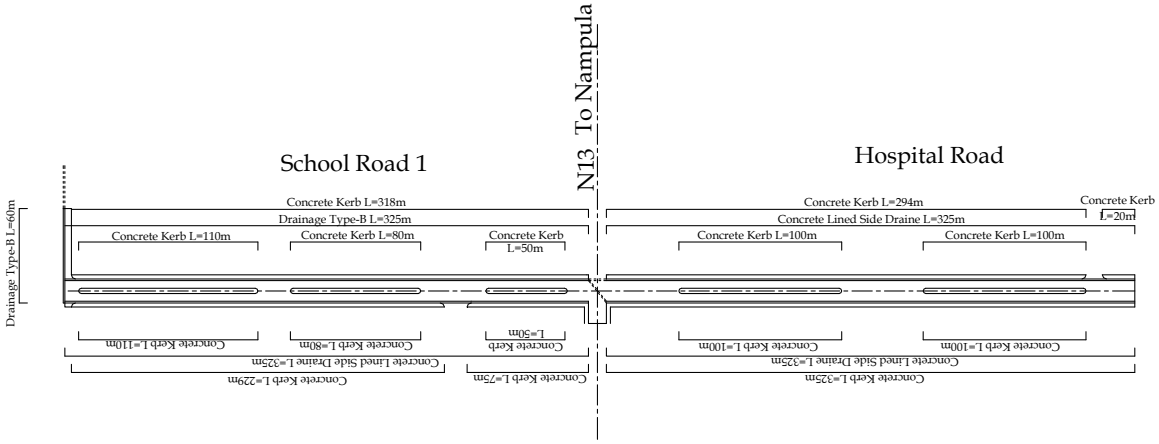
Figure 6.2.1 Location of the Project Road and Sections

6.3 Design and Technical Specifications

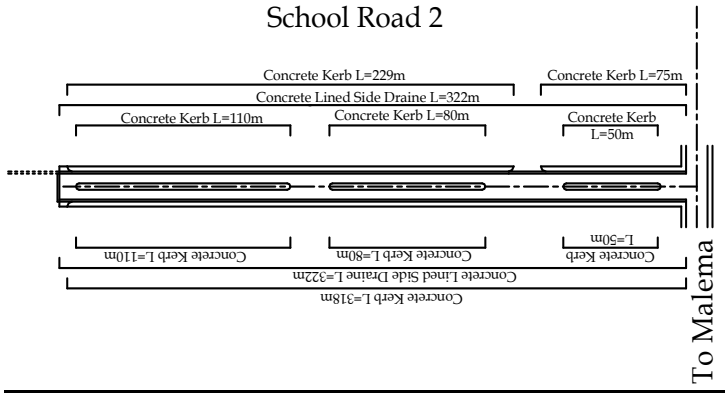
6.3.1 Design of the Works

Each plan and the typical cross sections are indicated in the figures below. The drawings are attached with Appendix-F.

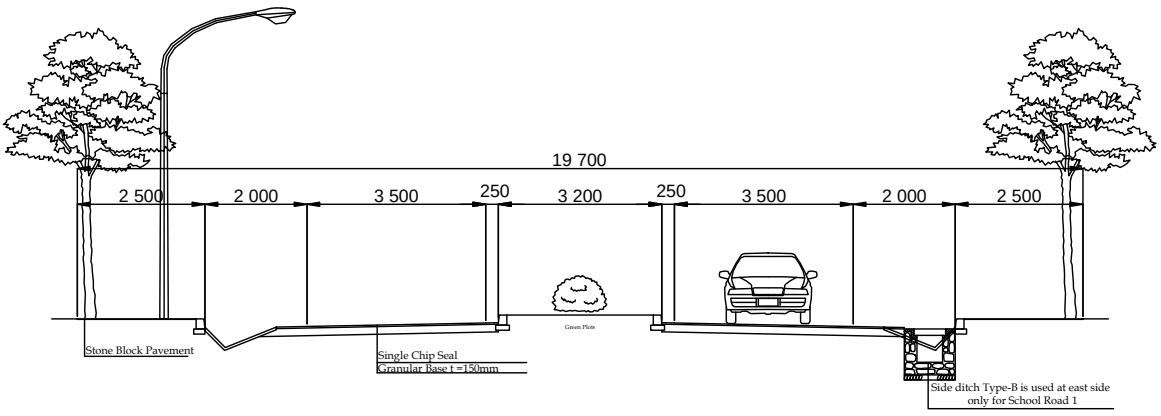
■ School Road 1 and Hospital Road



■ School Road 2:



■ Typical Cross Section:



6.3.2 Technical Specifications of the Project

Following is a technical description of the major construction works.

- Sub-grade : Excavation, Filling and Compaction:

The Sub-grade shall be excavated to the required level and compacted. The excavated soil, existing sub-base course and base course materials, except for problematic soils, can be used as future sub-base course material subject to the Engineer's approval.

Prior to the spreading of sub base course material, the sub-grade shall be levelled off and compacted to more than 90% (AASHTO T180 Method D) of the maximum dry density. The testing shall be made at intervals of no more than 200m.

The suitable filling material shall be placed in layers and compacted. The depth of each layer shall be less than 200mm. Each layer of material shall be compacted to more than 95% (AASHTO T180 Method D) of the maximum dry density. The moisture content of the material shall be brought into the Optimum Moisture Content (OMC) (AASHTO T180). A sufficient watering for compaction shall be ensured.

- Granular Base Course:

The material for the base course shall consist of crushed hard durable stones produced by crushing of unweathered rock. It shall be clean and free from organic matter, lumps of clay, or other deleterious substance. The material shall be of such a nature that it can be readily laid and compacted without segregation. The aggregate shall comply with the following quality and grading requirements.

Table 6.3.1 Requirements of Materials for Base Course

Abrasion of aggregate retained on 5 – 13 mm sieve	Less than 40%
Plasticity Index of aggregate	Less than 4%
Soaked CBR at maximum dry density	More than 80%
Sodium sulphate soundness subjected to 5 cycles of test	Less than 20%

Table 6.3.2 Grading Requirement for Base Course (AASHTO M147)

Classification	Amounts Finer than Each Standard Sieve Percentage by Weight (%)						
	50mm	25mm	9.5mm	4.75mm	2.00mm	0.425mm	0.075mm
A	100	-	30-65	25-55	15-40	8-20	2-8
B	100	75-95	40-75	30-60	20-45	15-30	5-20
C	-	100	50-85	35-65	25-50	15-30	5-15
D	-	100	60-100	50-85	40-70	25-45	5-20
E	-	100	-	55-100	40-100	20-50	6-20
F	-	100	-	70-100	55-100	30-70	8-25

Base course material shall satisfy one of above classifications.

For compaction in the longitudinal direction, the Contractor shall begin to compact along the edges, and progress gradually toward the centre. On a super-elevation section, the Contractor shall start to compact along the low side, and progress towards the high side.

During the work, the surface of the base course shall be shaped and sloped to prevent pooling of water.

Compaction of each layer shall continue until a field density of at least 95% of the maximum dry density determined in accordance with AASHTO T 180, Method D, has been achieved. In-situ density determination shall be made in accordance with AASHTO T 191.

- Bituminous Prime Coat:

The design drawings show the type and grade of bituminous material. The bituminous material shall conform to the requirements of the specifications listed below or as instructed by the Engineer:

- ✓ Medium-curing cut back asphalt : AASHTO M82[1]
- ✓ Rapid-curing cut back asphalt : AASHTO M81[2]

The grade (with temperatures of application in degrees Celsius) shall be MC-70 (43 - 85 degrees) or RC-250 (60 - 100 degrees)[3] .

The prime coat shall be applied only after approval of the Engineer. Bituminous material shall be applied uniformly and continuously to the width of the section by proper means. The rate of application is usually in the range of 1.0 - 2.0 liter/m2 and the Engineer will determine the exact rate and material grade of each application material.

[1] M82: Cut back asphalt (Medium-curing type)
[2] M81: Cut back asphalt (Rapid-curing type)
[3] Degree Celsius

The application of bituminous material shall not be in excess of the specified amount. Excess bituminous material shall be sponged from the surface. Skipped areas or deficiencies shall be corrected.

■ Single Chip Seal Pavement:

1) Aggregates

Aggregate for Single Chip Seal shall consist of clean, dry, hard durable crushed stone or crushed gravel free from dust, clay, dirt and other deleterious matter. Aggregate shall meet the quality requirements of AASHTO M80 except as altered herein.

All aggregates shall be mechanically screened to remove dust and small particles. Where asphalt or cutback asphalt is used, aggregate shall be pre-coated.

Aggregates shall have a percentage of wear not exceeding 35 when tested for abrasion resistance by AASHTO Method T96 and, when subjected to five alternations of the sodium sulphate test for soundness (AASHTO Test Method T104) shall have a weighted loss not greater than 12%. The flakiness index shall not exceed 33%.

Aggregates sizes to be used with surface treatment shall be as follows:

Average Least Dimension 12.5 mm

The “nominal sized” aggregates shall comply with the following gradation requirements using AASHTO Test Method T27.

Grading Requirement for Single Chip Seal

Nominal Size of Material	Amounts Finer than Each Standard Sieve Percentage by Weight (%)						
	25.0mm	19.0mm	12.5mm	9.5mm	4.75mm	2.36mm	1.18mm
12.5mm	100	90-100	0-30	0-8	-	0-2	0-0.5

2) Bituminous Materials

Bituminous materials shall conform to the requirements of the Specification listed below or as instructed by the Consultant:

Medium-curing cut back asphalt : AASHTO M 824
Penetration grade : AASHTO M 205

The grade (with temperatures of application in degrees Celsius) shall be penetration grade 60-70, 80-100, 150-200 or MC-3000.

[4] M82: Cut back Asphalt (Medium-curing type)
[5] M20: Penetration Graded Asphalt Cement

The penetration grade shall be 60-70, or they shall be any other suitable cutback asphalt approved by the Consultant.

3) Rolling and Brooming

The pneumatic tyred rollers shall be used to roll the aggregate. Rolling shall commence immediately after spreading and continue, in conjunction with drag brooming, until the aggregate is embedded in a uniform surface is obtained. At least 4 passes of the roller over all parts of the surface shall take place.

Rolling shall continue until the aggregate is bound properly to the binder. If satisfactory embedment does not occur, then further rolling shall be carried out the following day. When the binder has hardened to the stage that no more aggregate can be pressed into it by rolling, all loose aggregate shall be removed by sweeping.

If the Consultant considers that the adhesion of the aggregate is unsatisfactory, the Consultant shall reject the work and direct that no further work be carried out until the conditions improve.

4) Construction Tolerance

The completed pavement shall comply with construction tolerances as described below.

		Any point	Measurement Standard
Width	Surface courses	Min. - 25mm	1 point every 40m

The surface of all constructed layers shall not have any irregularities, and the camber of all such surfaces shall comply with that shown on the Drawings.

Control of bituminous mixture and acceptance sampling and testing shall be carried out in accordance with the Engineer's instructions.

6.4 Implementation of the Works

6.4.1 Selection of the Contractor

The JICA Study Team selected a contractor for the construction of the facilities in accordance with the JICA's Local Contract/Subcontract Guidelines. Selection was on a price-quotation basis amongst 3 local contractors (which took place from March 27th to April 10^{th,},2007). The contractors were assessed by the study team and short-listed.

The awarded contractor is a Maputo-based reputable company called "CETA Construções e

Serviços S.A.R.L.", who offered the lowest bid and presented an ample capability supported by plenty of relevant work experiences. The contract was duly signed by both parties and entered into effect on the 16th April 2007. The following describes the Tender Schedule and Tender Process in more detail.

February, 2007: Short-listing

Based on results of a procurement survey implemented by the Study team as well as based on recommendations by ANE, who is the Counterpart Agency, 5 contractors were short-listed. Due to the fact that the project area is located close to the Republic of Malawi, the contractors from Malawi were to be eligible for short-listing. Upon short-listing, the following criterion were applied:

- ✓ Work experiences in the Project area
- ✓ Work experiences of road paving

Table 6.4.1 Short-listed Contractors

1	CETA	Contractor of rehabilitation project Malema～Lurio（N13）
2	SHIRA	Malawian Contractor with work experiences on road pavements
3	C.M.C	Contractor of road improvement project of Namacurra～Rio Ligonha（N1）
4	KONOIKE	Japanese contractor who has sufficient work experiences in bridge and paved road construction under the Japan's grant aid.
5	TCO	Undertakes the road rehabilitation project Nampula～Malema（N13）

Out of 5 contractors, it was decided to exclude TCO due to an excess of current workload.

March 27, 2007: Notice of Short-listing

The 4 contractors were notified of their short listing and tender invitation via e-mail from Japan.

April 10, 2007: Call for Tender and Briefing

The tender documents, which include the condition of contracts, a form of contract and specifications were delivered to the 4 contractors by JICA study team, and bidding was to start.

April 10, 2007: Submission and Closing of Tender

Submitted bids from 4 contractors were opened and tender prices were formally registered in the presence of the deputy director of JICA Mozambique Office.

✓ Tender Evaluations (1)

Consistency of the submitted Bill of Quantity (BQ) was duly examined to verify that no significant variations exists on the estimated items amongst the bidders. Consequently, all submitted BQs were declared valid.

It is noted that CETA, who was ranked in 1st place, is currently undertaking the rehabilitation projects in the area and they were accordingly able to offer competitive prices.

✓ Tender Evaluations (2)

Consistency of the submitted quantities and schedule of rates was duly examined to verify that no significant variations exist among the bidders. Consequently, all bids were declared valid.

April 16, 2007 (11:30 -): Tender Clarification, Award and Signing of contract

After the Bill of Quantities, Specifications and the Conditions of Contract were clarified, agreement was reached between the two parties at the CETA Office in Maputo, and the contract was duly signed.

6.4.2 Work Schedule

The construction work is presented in a grant chart. The chart indicates a base-plan against with progress will be plotted periodically.

- ✓ Preparatory work and Mobilization: 4 weeks
- ✓ Scheduled start: 21th May, 2007
- ✓ Scheduled finish: 19th July, 2007
- ✓ Total construction period: 8 weeks

WORK PROGRESS CHART

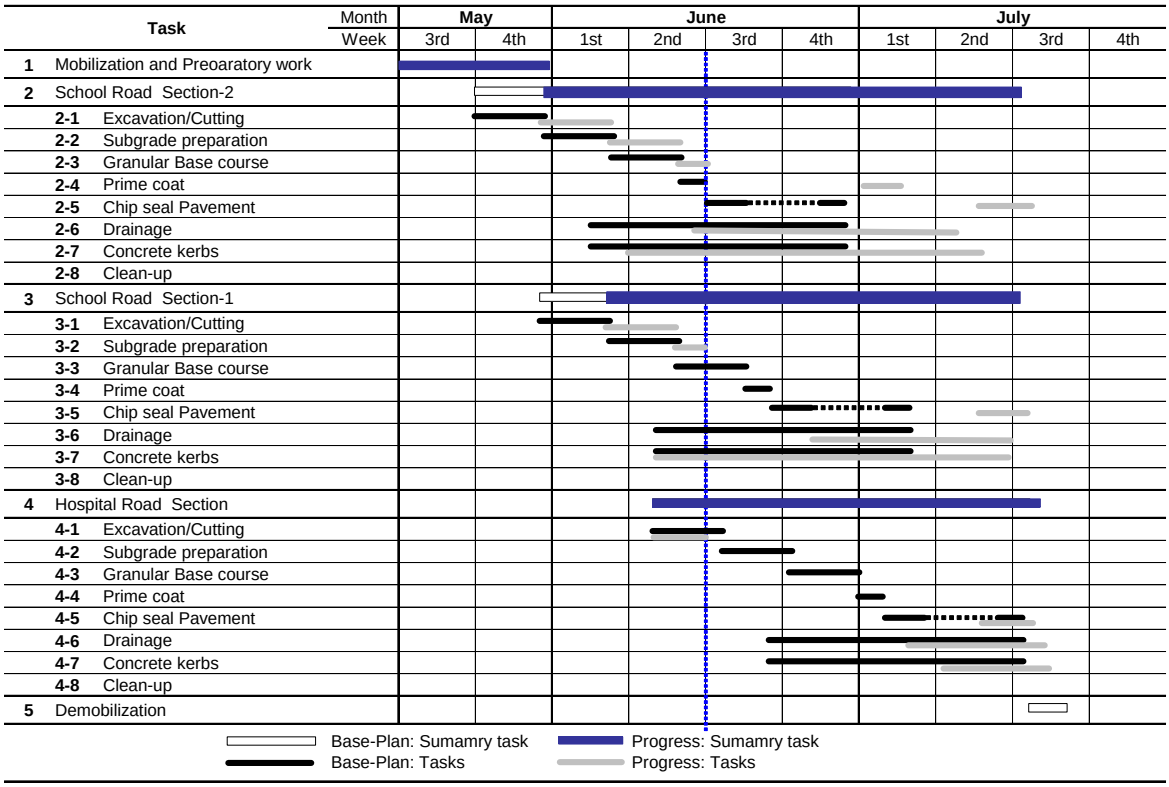


Figure 6.4.1 Work Grant Chart with plotted progress as of mid July/2007

6.4.3 Work Progress

After the mobilization and preparatory works, the rehabilitation works commenced on 29th May, 2007, 6 weeks after signing of the contact.

The rehabilitation work progressed as scheduled on the above indicated grant chart. Works completed on July 30, 2007. It is observed that a one week of delay at the initial stage of the works, was recovered by increasing the working hours. Milestones in the work schedule are summarized as below.

- ✓ Commencement date: 29th May, 2007
- ✓ Finish date: 30th July, 2007
  - ✓ Excavation/Cutting: 16th June, 2007
  - ✓ Sub grade preparation: 16th June, 2007
  - ✓ Granular Base course: 30th June, 2007
  - ✓ Pavement w/Single Chip Seal: 26th July, 2007
  - ✓ Drainage and Pedestrian way: 30th July, 2007
- ✓ Total construction period: 10 weeks

Detail progress of tasks in the various project stages of the construction is presented in the photographic report, as attached in Appendix-A.

6.5 Outcomes from the Works

The following facts and lessons were pointed out for feeding back to the small scale construction in regional development.

- Capability of the local contractor （Time management, Quality management, Procurement） and required level for the site supervision.
- Quality achievable and required level for the site supervision.
- Updated construction cost and Unit price.
- Procurement conditions and local circumstances for primary material（aggregate, cement, bitumen, etc.）
- Results of the soil mechanical study

The facts and lessons indicate that it is optimum that the rehabilitation for the community infrastructures is comprehensively implemented in combination with the large scale road rehabilitation in terms of the project cost efficiency, the best management on the consturuction deliver time as well as its quality.

PART 5

CONCLUSIONS & RECOMMENDATIONS

PART 5 CONCLUSIONS AND RECOMMENDATIONS

1.1 Introduction

This chapter presents the conclusions of the Study, result of the preliminary design, regional development plan, project evaluation and project implementation requirements, and recommendations to achieve the overall objective of furthering the development of the Northern provinces.

1.2 Results of Preliminary Design

(1) Design Speed and Design Standards and Specifications

The selection of design standards "especially pertaining to the design speed" is greatly influenced by the topography, traffic characteristics and the function of the road itself. As a result of some analysis based on construction cost and traffic management, the Study Team concluded that the design speed of 80 km/h is appropriate. Important considerations were the multi functions and roles of the Study Road as a trunk road on the international corridor (connecting Zambia and Malawi with Nacala Port) and as a regional road in the northern region of Mozambique.

(2) Alignment

The alignment plan for the Study Road is essentially based on satisfying the geometric standards for a 80km/h design speed; however, it is equally important that the impacts to the social and natural environmental aspects are minimized. Therefore the Study Team adopted the following concepts for the alignment plan:

- The existing centerline shall be followed in the town and major village sections.
- In other sections, the alignment shall satisfy the SATCC Standards taking into account the position of the existing centerline as much as possible.
- Bridges assessed as structurally sound by the bridge inventory survey shall be used with a view to the minimization of the initial capital costs.
- The option of bypass routes for the district centers was not applied in this Study judging that the traffic volume forecasted would not cause traffic congestion and adversely impact people living in the district centers by the target year of 2026.
- Instead, side walkways and wider shoulder space were planned within the town sections of the district centers in consideration of road safety.

(3) Type of Pavement Structure

The pavement composition has a large impact on both the initial construction cost and future maintenance cost within the design life of the Study Road, and it is therefore important to decide using the concept of whole life cycle cost. As a result of the pavement structure study and considering the life cycle cost, the Study Team concluded that a DBST (Double Bituminous Surface Treatment) supported by a granular base-course and sub-base would be preferable. However, this should be confirmed in the detailed design stage when the major material costs including crushed stones and cement are clarified in order to explore the most cost-efficient pavement structure.

(4) Concept of Land Acquisition and Resettlement

With regard to the designated Right of Way (ROW), 30 meters from the edge of shoulder is the legal road reserve according to the Land Act. However, the preliminary resettlement survey found that approximately 5,000 houses and facilities are located within ROW. Considering a smooth implementation of the Project and minimization the adverse social impacts and initial cost burden by the GOM, the Study Team recommends to apply the COI concept. This concept outlines that only approximately 5 meters from each construction edge are cleared for project implementation. This range includes the permanent road structure as well as space for temporary road diversions during the construction.

1.3 Regional Development Plan

(1) Development Policies

Based on the national development plans, regional development plans and results from interviews held with local people of the Study area, the following three (3) pillars of the regional development policies were prioritized ;

- Agricultural development (for industrial development)
- Improvement of strategic areas
- Upgrading of basic services

Under each of the three pillars, development activities are elaborated specified by implementation period, comprising short-term, medium-term and long-term. The development activities are listed in the next table. Especially, strategic development programs in the short-term were named as the **pilot projects**.

	Area Involved	Agriculture Development	Improvement of Strategic Area	Upgrading of Basic Services
Short -term	Half of the 5 districts and 1 city （**30 km both sides** from the project road）	Organizing family farmers into Groups (**target 20%**) and various development programs to promote agricultural development	Development of **rural centers**, improvement of mobility and mitigating measures for the negative impacts caused by road development	Health, Education, Water Supply
Mid -term	All of the 5 districts and 1 city and **Nacala Corridor in a narrow sense**	Organizing family farmers into Groups (**target 30%**) and various development programs to promote agricultural development	Development of the **regional centers** of Nampula and Nacala and continuous development of the rural centers	Health, Education, Water Supply , Electricity
Long -term	**Nacala Corridor in a broad sense**	Organizing family farmers into Groups (**target 50%**) and various development programs to promote agricultural development	Development of **agro-industrial and distribution centers** in the cities of Nampula and Nacala, invite private investment for livestock raising and plantation, integrated transportation development of road, railway, airport and shipping	Health, Education, Water Supply, Electricity, Improvement of living environment

(2) Selection of Pilot Projects

The Pilot Projects are selected from the regional development program as mentioned above and will be implemented during the Study period. Feedback on the lessons learned will be obtained before embarking on a full-scale regional development program. The selected candidate pilot projects are presented below:

(a) Agriculture Development Sector

- Organization of Groups (Producers Associations)
- Development of Pilot and/or Demonstration Farms

(b) Improvement of Strategic Area Sector

- Rehabilitation of Feeder Roads and Bridges
- Securing Means of Transportation (Bicycle Promotion Center)
- Development of Michinoeki (Roadside Station)
- Development of Storage Facilities
- Development of a Agro Processing Factory
- Development of a Work (Repair) Shop
- Traffic Safety Campaign
- HIV/AIDS Campaign

(c) Upgrading of Basic Services

- Medical Facility
- School
- Well

Although many types of the pilot projects were selected, the criteria for selecting the projects and respective priorities for implementation were as follows;

- Urgency
- Local needs
- Economic development effects
- Immediate effects
- Conformity to the JICA Pilot Project Scheme (Limitations on time, budget and public benefit)

The following 3 pilot projects are selected as priorities;

- Michinoeki (Road side station)
- Bicycle Promotion Center
- Traffic Safety Campaign

(3) Implementation of Pilot Projects

The pilot projects aim to identify the suitable/achievable approach and methodology for realization of a "Rural Center (Core) Project", which is the one of the main components of the regional development program identified. This Rural Center has multi-functional road side facilities not only offering drivers refreshment service but also providing rural income generation opportunities by rendering the market space. This idea was originated from the concept of the Japanese "Michinoeki", and slightly modified to meet the particular environment in Mozambique. In the initial stage, the Michinoeki will be operated by PPP (Public Private Partnership) scheme in cooperation with ANE, the local government and the operation unit at Anchilo in Nampula province.

Through monitoring of the pilot project, the Study Team will identify lessons learned in terms of site location, scale of the facility, operation system, etc… This will provide a guideline for the establishment of Rural Center and utilized when realizing the full-scale project in the future.

1.4 Project Benefits

The economic analysis of upgrading the Study Road concluded that project implementation (between 2009 and 2011) maybe appropriate based solely on benefits to road users and would produce substantial additional economic benefits. The economic validity for the Project is acceptable with an EIRR of 18% based on the most suitable pavement structure of DBST surfacing on granular base and sub-base assuming optimum maintenance interventions.

In addition to the direct economic benefits, the Project is likely to produce significant social and other benefits in the Study Area and beyond.

The roles and functions of the Study Road are described below:

- The road will be upgraded to all weather paved standard as part of the Nacala Corridor. This corridor is an international trunk road connecting land-locked countries of Zambia and Malawi with the Nacala Port in Mozambique. This will not only promote the international trade but also the regional development in the northern region of Mozambique by creating reliable transportation of passengers and freight at reduced cost.
- Despite the road being located in one of the richest agricultural and natural resource area of northern Mozambique, the local population has been struggling with poverty including high illiteracy rates, poor access to basic needs and markets. The road upgrading will enable the rural people to easily access schools, hospitals, government offices and markets and expand their income generation opportunities.

Given the qualitative benefits for international trade and regional development together with the quantifiable economic benefits for the road users, one can conclude that the upgrading of the Study Road is socio-economically viable and necessary. The initial Environmental Examination shows that the negative impacts can be avoided or reduced to an acceptable level in compliance with the Mozambique laws and regulations and effective implementation of mitigation measures and a rigorous monitoring program.

On a conclusive remark, the Project is seen as viable.

1.5 Project Implementation Requirements

The Study Team identified a number of issues that need to be followed up by ANE to

ensure a smooth implementation of the project. The following specific activities should be undertaken.

(1) Project Management

ANE has sufficient capacity and experience to act as the executing agency for the Project. However, ANE should take not only both responsibilities for implementation and overall coordination but also operation and maintenance of the Study Road after completion. As a result of each activity, the Study Road will be maintained as an international trunk road.

(2) Pre-Construction Activities

(a) EIA approved by MICOA

An EIA approval from MICOA should be obtained by the end of 2007. This EIA will include a preliminary resettlement action plan and environmental & social impact assessment for construction stage.

(b) Land Acquisition and Resettlement

With regard to land acquisition and resettlement, ANE shall prepare a resettlement action plan to ensure a fair and smooth process of relocation and compensation of affected people.

1.6 Recommendations

The upgrading of the Study Road, including the reconstruction of six bridges, is planned to be completed by December 2011 with a loan from AfDB and JBIC as an EPSA project. The following recommendations are presented to guarantee a smooth implementation of the Project.

(1) Implementation of Regional Development Programs together with Road Upgrading

Although at present some international donors (AfDB and JBIC) have shown interest in financing the upgrading of the Study Road, there exist no specific regional development programs for the Study area. This existence of such a development program together with the proposed upgrading the Study Road would provide synergy on poverty reduction, which is the ultimate goal of the MOG.

JICA in particular has a wide experience in supporting regional development in African

countries and subsequent aid schemes for technical cooperation (e.g. Technical Cooperation Project, deployment of volunteers). Further involvement of JICA in the area of regional development along the Study Road would be recommendable to support the identified regional development programs and to build the Michinoeki at the appropriate places. In the stage of implementation of Michinoeki and others, it is recommended that Michinoeki shall be implemented as a soft component of the project, and community roads along the study road shall be implemented together with this project.

(2) Environmental and Social Consideration

(a) Minimization of Resettlement and Stakeholder Consultation

Application of the COI concept is strongly recommended for smooth implementation of land acquisition and resettlement for the Project. It will minimize the period of resettlement activities as well as reduce the initial financial burden on the GOM.

ANE shall prepare a resettlement action plan based on Mozambique's EIA law and other relevant resettlement policies during the detailed design stage. In the implementation stage of resettlement activities, frequent consultation with the Affected People (AP) is important to achieve consensus.

(b) Appropriate Environmental and Social Consideration for other relevant activities

This project requires two EIA approvals; one for the road upgrading works and another for opening up new quarry and borrow pits. Previous experiences indicate that it is possible to obtain environmental permission simultaneously on both issues with an ESIA.
During the detailed design stage, ANE need to present a detailed plan for opening quarries and borrow pits to the provincial directorate of MICOA in Nampula, and submit a standard application form with approved ESIA and Environmental License to the Ministry of Mineral Resources in Nampula, in order to receive relevant permissions.

(3) Implementation Scheduling

The Project is regarded by both ANE and the GOM as one of the most important activities in the RSS program. In line with this, construction work is expected to begin in January 2009 with an estimated 36 months for completion. Considering this proposed schedule, the detailed design should be finalized by June 2008 together with the preparation of draft bidding documents. After completion of the detailed design, an appraisal will be carried out by AfDB and submitted to the board of AfDB for approval. During the appraisal and

approval by AfDB, ANE should complete the other requirements such as land acquisition, resettlement and preparation for the procurement stage.

(4) Items to be carried out in the Detailed Design Stage

As mentioned above, the detailed design should start from January 2008 and finish within 6 months, by the end of June 2008. It will include additional field surveys, selection of the final design standards and specifications, preparation of the design report including drawings, bill of quantities, engineer's estimate, and the preparation of bidding documents.

The following specific activities should be undertaken in order to ensure a smooth construction of the works.

(a) Additional Geological Survey

- Boring survey including Standard Penetration Test (SPT) and laboratory test for each pier or abutment at the six bridge sites except for locations that were already included in the FS stage
- California Bearing Ratio (CBR) at every 10 km interval and Dynamic Cone Penetration (DCP) at every 2 km interval
- Laboratory test for soil materials for base and sub-base layers

(b) Topographical Survey

- Preparation of line mapping for houses, trees and others
- Centerline and cross sectional surveys of changing points topographies
- Plan survey for piers and abutments on the bridge sites

(5) Site Survey for Quarries

In the FS, aggregate and crushed stone for the Study Road were assumed to be supplied from respectively the existing quarry at Namialo for Section 1, a new quarry for Section 2 and the existing quarry near Cuamba for Section 3. Since the costs of quarry materials largely affect the total construction cost for road works due to long hauling distances, it is essential to map the quarry sites for each of the Road Sections. For this reason, it is recommended to undertake a detailed survey including possible new quarry sites and available volume and quality of the stones. If the availability of aggregate is not sufficient, the pavement design should be reviewed based on these surveys.

(6) Cement Supply for Concrete Structure

Construction work of the Study Road is expected to commence in January 2009 and

cement supply for the concrete structure will follow a similar timing. Major concern on the supply of cement is the FIFA 2010 World Cup. Currently, Mozambique imports half of its cement from especially from South Africa. Therefore, the detailed design should take into account the shortage of supply in cement when drafting the construction methods. Furthermore, ANE should consider to make arrangements with the local cement factories to ensure an uninterrupted supply of cement for the Study Road projects for the next few years.

(7) Operation and Maintenance

The following recommendations are presented for the operation and maintenance stage of the Study Road and Michinoeki Anchilo.

- Weighing stations (axle load control), one place in each district, will be needed on the Study road to control overloading. Axle-load controls are crucial to protect the road pavement structure and prevent road surface damage that would reduce its economic life.
- A road safety program will be needed to develop and improve road safety awareness and education among rural people in nearby communities and drivers.
- Maintenance records should be computerized in the future to enable engineers to monitor maintenance activities and costs for each road surface type.
- Routine maintenance work, such as cleaning of the drainage facilities and cutting of grasses should be carried out using labor-based methods by local people for expanding employment opportunities along the Study Road.
- In order for Michinoeki Anchilo to be operate smoothly ANE should manage the staffs of Michinoeki Anchilo every month.