

**ZANZIBAR REVOLUTIONARY GOVERNMENT**



**ZANZIBAR POVERTY REDUCTION PLAN  
(ZPRP)**

**INFRASTRUCTURE**  
(AIR TRANSPORT, MARITIME TRANSPORT, ROAD TRANSPORT AND ENERGY)

**BACKGROUND PAPER**

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# **INFRASTRUCTURE**

## **1. CURRENT SITUATION**

### **1.1 Air transport**

Zanzibar has only two airports, Zanzibar (Kisauni) airport in Unguja and Karume airport in Pemba. The Zanzibar airport was rehabilitated in 1974 to handle DC 9 and F 27 planes and in 1990/91 to extend the runway in order to handle Boieng 737 and 767 aircrafts. Development of tourism and trade liberalization have resulted in a remarkable increase in air traffic

It has been observed that there is a continuous deterioration of the runway in Zanzibar airport. Terminal buildings and facilities in both airports are not sufficient to accommodate the present traffic. There is lack of security equipment, cargo-handling gears like conveyor belts and baggage trolleys. Public address and computerized system showing aircraft movements are also not in place. Safety equipment for navigation like Instrument Landing System, Very High Frequency Omni Directional Radio Range and Distance Measuring Equipment (VOR/DME) are not available. Pemba airport has no fire fighting facilities at all, with the runway needing further extension. The runway at Zanzibar airport is deteriorating

### **1.2 Maritime transport**

There are five ports in Zanzibar and Pemba Islands. Zanzibar Port Corporation (ZPC) is a public entity, which has full autonomy for operation and development of ports.

Malindi port was built in 1925 as a modest lighter port. The wharves of the main seaport were constructed in 1989-1991 with financial assistance from the European Union. The Port handles more than 90% of Zanzibar trade. Malindi port is in a poor state in terms of infrastructure (quays, container stacking yard etc) as well as very limited operational area and storage facilities

Several assessments of Malindi port condition were made between 1995 and 2001. However, no repair works has been done resulting in further deterioration of the wharves. The main port wharf has deteriorated to the extent that it can no longer be repaired.

### **1.3 Road transport**

Zanzibar has a road network of about 1150kms with an average road density of 0.315km/sq.km. It is estimated that about 46 % of the roads are in good condition . The rest need rehabilitation.

The government, using its own resources and with support from various donors, has been able to construct/rehabilitate some roads like urban roads in Unguja, Makunduchi – Mtende, Kizimkazi, Unguja Ukuu road, Kitogani – Paje and Vitongoji – Chake Chake. Despite such effort the existing infrastructuresuch efforts is still unable to cater for demand.

### **1.4 Energy**

#### **1.4.1 Electricity:**

Presently Unguja sources power from the Mainland through a submarine cable connected about 20 years ago. The cable capacity is 40MW and the present demand is 27MW. The expected working period of the submarine cable is 30 years. For that matter, a new cable needs to be laid before year 2010. The annual increase in consumption is 9 %, for Unguja. If this trend continues the existing cable will be overloaded by the year 2008.

At present the stand-by reserve (diesel generators) for Unguja can only meet 18 % of current demand.

Pemba gets its power from diesel generators. There is serious power shortage with supply only at 2MW while demand is at 4MW. The generators in Pemba were installed in the mid 1980s. The last major rehabilitation of the engines was done in 1995/96 with financial support of ADB. Since then only minor maintenance works have been done. Normally generators are supposed to be rehabilitated every after two years.

#### **1.4.2 Fuel wood**

The market for wood fuels is about 129,000m<sup>3</sup> of dry wood equivalent, annually, or about 2.6 million bundles of firewood and 740,000 baskets of charcoal. Per capita consumption of solid wood for energy is higher in urban areas (0.6-0.8m<sup>3</sup> p.a.) than in rural areas (0.4m<sup>3</sup> p.a.) where waste coconut fibres are burnt as a free or cheap alternative fuel source.

- Annual fuel wood consumption is estimated at 301,238 m<sup>3</sup> (bundles 13,097,304). Using a conversion factor of 0.023 and taking mean as 38.7m<sup>3</sup>/ha this translates to almost 7783 ha. of deforested land per annum.

## **2. CHALLENGES/CONSTRAINTS**

### **2.1 Air transport**

The main challenge with respect to air transport is one of ensuring safety of aircraft movement and meeting the required standard of service, runway, terminal buildings and facilities. Closely related is the issue of management of airports, which is still government domain.

### **2.2 Maritime transport**

The challenge is to have efficient ports that ensure safe operation of cargo and passengers; adequate space for container handling and storage, adequate cargo handling gear and berth space to accommodate traffic and separation between cargo and passenger terminals.

### **2.3 Road transport**

The challenges are:

- Absence of a sustainable maintenance and rehabilitation initiatives for existing road network.
- Lack of well-planned construction priorities that ensure that rural areas are accessible all the time.
- Improper system that ensures sustainable and adequate financing for road works.
- Lack of proper maintenance program for the physical infrastructure as well as for equipment and plants.

### **2.4 Energy**

#### **2.4.1 Electricity**

The major challenge of power supply in Pemba is high cost of generation especially fuel costs. The cost of producing electricity from diesel generation is USD 0.14 per Kwh while the average selling price to customers is USD 0.06 per Kwh

The other challenge facing the energy sector, is lack of viable alternative sources of generating electricity.

#### **2.4.2 Fuel wood**

The challenges/constraints include:

- Poor planning and/or supervision of settlements.
- Expensive alternative sources of energy: (electricity, kerosene, and biogases).

### **3. POLICIES AND PROGRAMMES**

Zanzibar Vision 2020 recognizes the pivotal role of infrastructure in the development process, calling for expansion, improvement and increase in the provision of power, marine, air and road networks. It also encourages use of fiscal and other types of incentives to encourage private sector participation in the development of infrastructure.

The Zanzibar Poverty Reduction Plan identifies infrastructure as being very central for poverty reduction and calls for strategic interventions in five priority areas: road transport, marine transport, communication, energy and housing development. Programmes in infrastructure are mainly guided by the two documents.

#### **3.1 Air transport**

The main objective of policy is to ensure reliable and safe air transport operation while enhancing best customer service at optimum cost. Efforts are being taken to increase level of safety at Zanzibar airport by installing various navigational and landing aids. The Zanzibar Security Committee has been formed to oversee security and other related airport operation issues at both airports. Negotiations with various institutions are in progress for the purpose of providing assistance to improve safety, security and service to acceptable standards. Airline operators have been encouraged to participate in improving the level of service. Training of airport staff is also planned.

#### **3.2 Maritime transport**

The main objectives of the Zanzibar Ports Master Plan are:

- Development of commercial ports to meet existing and demand for maritime transport to year 2020.

- Reintegration of the Malindi port area with the historic waterfront in order to provide more support to tourism development.
- Supporting free port concept.

A new commercial port is planned to be constructed at Maruhubi area while Malindi port is to be developed for passenger facilities including handling of tourist cruise vessels and other commercial and leisure activities.

### **3.3 Road transport**

Government policy emphasizes the need to:

- have safe, good, reliable road transport for goods and passengers, accessible urban and rural roads at all the time in both islands of Unguja and Pemba.
- integrate road access with the Tourism Free Zone and productive rural areas.
- encourage local government and community investment initiatives and efforts in regional authority roads.
- put in place sustainable systems of financing periodic and regular maintenance of feeder, trunk and other roads.
- draw attention and awareness road users on the importance of proper use of roads.
- to establish maintenance management capability.
- involve local private contractors for regular road maintenance works.
- establish initiatives to secure effective and better management of the road network such as establishment of a Road Maintenance Fund and Road Management Authority. (RMA)

### **3.4 Energy**

#### **3.4.1 Electricity**

It is the goal of the government to ensure supply of electricity throughout the country in order to:

- reduce the migration of youths to urban areas.
- Supply power to water schemes in order to enable rural areas get clean and safe water hence reduce the risk of water borne disease such as cholera.
- enable people in rural areas develop local industries, workshops etc, and thus create jobs especially for youths.
- Promote tourism.

#### **3.4.2 Fuel wood**

It is the policy of the Zanzibar Government to enhance the ability of Zanzibar forests to meet the demand for forest products within the frame work of sustainable management and to promote efficient forest products utilization and substitution measures.

The policy aims at “encouraging efficient utilization and substitution of wood products and promotion of sound trade” through the following strategies:

- Conducting research on fuel saving devices and seeking appropriate means to promote the use of such devices
- Carrying out studies and encouraging the use of alternative sources of energy to reduce wood fuel consumption both to households and large-scale consumers.
- Promoting efficient methods in charcoal and lime production.
- Reducing waste harvesting and processing timber and striving for efficient, full utilization of each harvested tree.
- Investigating into and promoting the use of coconuts and wood of other less common species to complement conventional sources of fuel.

Existing programs, which have a direct impact on energy sources, are biodiversity conservation of Ngezi, Jozani and Chwaka bay, village afforestation, clove rehabilitation programs and rehabilitation of government plantations.

## **4. PRIORITY ACTIONS FOR THE WAY FORWARD**

### **4.1 Air transport**

The Zanzibar Government is taking remedial measures to achieve a required standard of air transport services. To accomplish this goal the following areas have been accorded priority:

- Rehabilitation of existing runway at Zanzibar airport
- Improvement of safety and security at Zanzibar and Pemba airports
- Rehabilitation of existing passenger terminal buildings and facilities at both airports
- Development of Airport Master Plan
- Extension of the runway in Pemba
- Transforming management with a view to having an autonomous authority

### **4.2 Maritime transport**

The current situation of Malindi port is precarious.

The following options are being considered:

- Closing the wharf and all cargo to be handled outside the wharves by dhows or barges.
- Closing the main wharf and undertaking emergency repair works of the north wharf.
- Repairing of the north wharf and reconstruction of the main west wharf.
- Constructing a new commercial port at another site and converting the present port into passenger terminal.

### **4.3 Road transport**

Since 1987 the government has initiated several measures aimed at arresting deterioration in the road condition. The measures include soliciting financial and technical assistance for road rehabilitation and maintenance.

Furthermore, the government has embarked on a program of rehabilitating and enhancing road maintenance. Towards this goal, a ten-year program, the Zanzibar Integrated Roads Program (ZIROP) has been initiated.

Besides this program, the government has embarked on a program of strengthening its internal capacity for carrying out maintenance and rehabilitation works through deploying of its own units, using own budget.

## **5. STRATEGIC/PRIORITY AREAS FOR DEVELOPMENT ASSISTANCE**

### **5.1 Air transport**

The Government of Zanzibar with the assistance of the World Bank is currently undertaking measures of rehabilitation of the runway at Zanzibar airport. The Federal Aviation of the United States of America has agreed to provide devices for airport security. Also, Oman Air has undertaken to provide Instrument Landing system. The Government is looking for additional assistance to finance other projects.

### **5.2 Maritime transport**

External assistance is required to arrest the present situation of Malindi port in Unguja and Mkoani port in Pemba. A plan has already been drawn.

For a period of three years (2002-2005) the plan will concentrate on the following areas:

#### **Emergency Rehabilitation of the Malindi Port**

- To expedite implementation of the findings of a study expected to be financed by the European Union at a cost of about 80,000 Euro.  
This phase is planned to start by the end of April 2002 and end by the end of May 2002.
- To prepare a temporary operational plan/procedure, that will provide safe services to passengers and cargo.
- To source funds from for implementing recommendations of the proposed study.
- To follow up the physical implementation of the emergency plan.

## **Upgrading of Mkoani Port.**

Mkoani port is to be improved through:

- Upgrading of cargo-handling equipment.
- Readjusting the jetty due to technical deficiency during its construction in 1990.
- Improvement of basic requirements such as shelter for passengers and sheds for cargo.

### **5.3 Road transport**

The Zanzibar Government with the assistance of development partners is presently implementing the following projects

- Mkoani – Mtuhaliwa ( World Bank )
- Kidimni - Kitope – Machui Ring Road ( OPEC – BADEA )
- Zanzibar Road Study ( ADB )
  - i) Zanzibar Town – Dunga
  - ii) Zanzibar Town – Fumba
  - iii) Kinyasini - Tunguu
  - iv) Mfenesini – Bumbwini
  - v) Mahonda - Mkokotoni

Also there are various projects in the pipeline. These are:

1. Second Integrated Roads Project ( IRP II ) credit No. 2598 - TA  
  
Study to review operations of the Ministry of Communication and Transport
2. Second Integrated Roads Project (IRP II) credit No. 2598 - TA  
  
Technical Support for the Ministry of Communication and Transport in management, procurement of heavy equipment, and support to the department of roads.
3. Feasibility study  
  
Detailed engineering design and preparation of tender documents for the following roads:
  - Mkwajuni – Nungwi
  - Pongwe – Matemwe
  - Paje – Pingwe

Other areas for development assistance recommended are classified in three-priority construction packages as per the 1999 feasibility study recommendations as follows: -

**Priority '1'** includes 109 Km of roads.

**Priority '2'** includes about 100.Km of roads.

**Priority '3'** includes about 73.5Km of roads.

#### **5.4 Energy**

- Afforestation programs
- Research on fuel saving devices and appropriate means to promote the use of such devices
- Efficient methods in charcoal and lime production

### **6. COSTING OF PROGRAMMES**

Total resources needed for the development of infrastructure are estimated at US\$ 125.5 million detailed as follows:

#### **6.1 Air transport**

The overall cost for the projects is estimated at US \$ 10.5 million. The government of Zanzibar will contribute about 10% of the total cost of the project.

#### **6.2 Maritime transport**

It is estimated that about US\$ 1.5 millions will be required for upgrading services Mkoani Port.

The breakdown of the requirement is as follows:

<b>NO.</b>	<b>ACTIVITY</b>	<b>REQUESTED AMOUNT, US\$</b>	<b>GOVERNMENT CONTRIBUTION, US\$</b>	<b>TOTAL, US\$</b>
1.	Maintenance of the jetty and Services	405,000	45,000	450,000
2.	Erection of sheds	135,000	15,000	150,000
3.	Procurement of cargo handling machines	810,000	90,000	900,000
4.	Total	1,350,000	150,000	1,500,000

### 6.3 Road transport

The project cost is about US\$ 70.0 million, and the Government will contribute about 10% of the total cost.

### 6.4 Energy

#### 6.4.1 Electricity

The priority projects and costs are as follows:

PROJECT	COST IN US\$	TIME SCHEDULE	OBJECTIVES
Rehabilitation of power station in Pemba	1,115,000.00	2002 - 2003	To save the present power situation in Pemba
Installation of two engines (2x3MW for Pemba	3,600,000.00	2002- 2004	To meet the expanding demand for power
Extension of rural electrification program for Unguja and Pemba Phase IV	6,338,017.00	2002 - 2005	Speed the development activities in rural areas
study for Pemba submarine supply	1,500,000.00	2003 - 2005	To connect Pemba with reliable Power
Installation of 30MW Power Station	30,000,000.00	2003 - 2005	To provide Unguja with alternative source of Power.
<b>Total:</b>	<b>42,553,017</b>	-	

The Government will contribute 10% of the cost total of the projects/program

#### 6.4.2 Fuel wood

S/NO	PROJECT AREA	US\$	GOV'T OF ZANZIBAR CONTRIBUTION
1.	Cross sectoral research on fuel saving devices	700,000.00	Technicians, salaries, office and space
2.	Efficient method in charcoal and lime production	200,000.00	Technicians, salaries, office and space

## **7. MANAGEMENT ARRANGEMENT**

### **7.1 Air transport**

The management shall be under the Department of Aviation as implementing agency in collaboration with the Ministry of Communications and Transport, Ministry of Finance and Economic Affairs and Ministry of Communication and Transport of the United Republic of Tanzania. Plans are under way to transform the Airport Department into an autonomous authority.

### **7.2 Maritime transport**

The management of the programme shall be under the Zanzibar Ports Corporation as an implementing agency in collaboration with the Ministry of Communication and Transport and the Ministry of Finance and Economic Affairs - Zanzibar as well as the Ministry of Finance, union government.

### **7.3 Road transport**

Management shall be under the Road Department as implementing agency in collaboration with the Ministry of Communication and Transport, Ministry of Finance and Economic Affairs and Ministry of Works of the Union government. Plan is under way to transform the department into an autonomous authority.

The Ministry of Communication and Transport intends to do the following in order to improve governance:

- To establish a Road Fund Board that will be responsible for monitoring project funds and uses.
- To establish a contractors' board to handle contractors registration and monitoring.

### **7.4 Energy**

#### **7.4.1 Electricity**

The State Fuel and Power Corporation is the sole organization which by law has been given responsibilities for generation, transmission, distribution and sale of electricity.

The management is headed by a General Manager and has a Board of Directors that has a supervisory role. The Ministry of Water,

Construction, Energy, and Land is the parent ministry, which provides guidelines on policy issues. The projects/program executed by the corporation are supervised in coordination with the parent Ministry in collaboration with the Ministry of Finance and Economic Affairs.

#### **7.4.2 Fuel wood**

In order to assure sustainability of energy issues and implementation of energy projects, multidisciplinary teams will be formulated to make sure that plans are followed, monitored and evaluated. Donors will be part of the management teams having all rights in planning, monitoring and evaluation. Local governments will be consulted for their experience in energy sources and project implementation.

### **8. MONITORING AND EVALUATION**

#### **8.1 Air transport**

Evaluation of projects in this sub-sector will be made by the Department of Aviation in collaboration with the Ministry of Communication and Transport, Zanzibar, Ministry of Communications and Transport of the Union Government and donors.

Monitoring of the projects will be done by the coordinating office for donor-assisted projects in the Ministry of Communications and Transport.

#### **8.2 Maritime transport**

The Zanzibar ports Corporation shall be solely responsible for the implementation of the program. The Zanzibar Ports Corporation will make the evaluation process.

The monitoring aspect of the Projects will be done by the Ministry of Communication and Transport, in collaboration with the Ministry Finance and Economic Affairs.

Moreover, an executive committee and Board of Directors of the corporation will be following progress.

#### **8.3 Road transport**

Evaluation of projects will be done by the Roads Department in collaboration with Ministry of Communication and Transport, Zanzibar, Ministry of Works of the Union Government and the donors concerned.

Monitoring of the projects will be done by the coordinating office for donor-assisted projects in the Ministry of Communications and Transport.

## **8.4 Energy**

### **8.4.1 Electricity**

The State Fuel and Power Corporation does monitoring and evaluation aspects. Since the majority of projects are large in nature, a consultant will be hired and will have a direct role in monitoring and evaluation aspects.

The corporation will also establish a steering committee that is responsible for overseeing the implementation of the project. The committee will have a direct role to play in monitoring activities. This will be done together with the consultant through progress meetings expected to be held weekly or monthly.

The financier will also be informed. There will also be monthly progress reports that will be used for monitoring and evaluation purposes.