

**Department of Commercial Crops
Fruits & Forestry (DCCFF)**



MINISTRY OF AGRICULTURE,
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REVOLUTIONARY GOVERNMENT OF ZANZIBAR
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MINISTRY OF AGRICULTURE, NATURAL RESOURCES, ENVIRONMENT AND COOPERATIVES
The Department of Commercial Crops, Fruits and Forestry

CONCEPT NOTE
FOR
THE ZANZIBAR RUBBER PLANTATIONS

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LIST OF ABBREVIATIONS

<i>Sb/Sbs</i>	<i>Sub-block(s)</i>
<i>CNR</i>	<i>Commission for Natural Resources</i>
<i>PAY</i>	<i>Pereira, Amour and Yussuf</i>
<i>ZRG</i>	<i>Zanzibar Revolutionary Government</i>
<i>S2/D2</i>	<i>Half spiral second daily</i>
<i>S2/D3</i>	<i>Half spiral third daily</i>
<i>Kg/kg</i>	<i>Kilogram</i>
<i>Ha</i>	<i>Hectare</i>
<i>Av.</i>	<i>Average</i>
<i>SUA</i>	<i>Sokoine University of Agriculture</i>

INTRODUCTION

Natural rubber has been found in the latex of over 895 plant species. *Havea brasiliensis*, which is found in most rubber producing countries including Tanzania, is a native of Brazil. In Zanzibar the development of rubber plantations started as an attempt to diversify the agricultural dependent economy in early 70s. The feasibility studies (Anon 1901, Smith 1992) indicated that establishment of rubber is a feasible economic venture. Following these studies the actual establishment started in 1977 and up to 1982 1,270 hectares of rubber were planted. Earlier planting of 1977 was done using planting material (Sanje variety) from Tanzania mainland - Kilombero. The rest of planting was done using PBIGG clones from Malaysia Golf Garden. Rubber plantations were divided into two major locations; Unguja 637 hectares (Kichwele and Selem) and 633 ha in Pemba Island as distributed to Maziwani, Sanaa, Pongwa, Ngezi, Kangani, Bahareni, Kishindeni and Laaraq.

Tapping of rubber started on trial basis in 1985 where cup-lumps were mostly produced and sold in raw form, in Tanzania Mainland and occasionally in Mombassa, Kenya. Following the new Government policy of trade liberalization, as from 1992, all rubber plantations were leased out to different private companies. However, plantations fell into mismanagement and indiscriminate tapping. Consequently, the government decided to terminate the contracts. The Last company to lease the plantation was Zanzibar Rubber Plantations Ltd, whose contract was terminated in January 2002.

BACKGROUND INFORMATION

Documentary evidence show that rubber tree (*Havea brasiliensis*), was introduced in Zanzibar Island well before 1900. Isolated trees can still be spotted in areas such as Dunga in Unguja. Several reports indicate as early as 1892 that rubber was being exported from Zanzibar (Anon, 1901 as cited by Smith, 1992). However, little further attention was paid to rubber until 1970s. Zanzibar in 1976 reconsidered the development of rubber plantations when a feasibility study was commissioned. Planting on trial basis was recommended and actual planting started in 1977.

PLANTATION ESTABLISHMENT OBJECTIVES

The main Objective of establishing rubber plantations was to diversify the clove dependent monoculture economy of Zanzibar.

Individual blocks description in Unguja.

Kagera, Mkiwa, Msumbiji and Selem

Kagera block (291.5 ha) has the largest production area planted from 1977 to 1982. Mkiwa block (ha) rubber area consists of stems planted between 1980 and 1982. Large areas in Mkiwa can be classified as potential productive due to plantation failure and there is a considerable area (150ha). Msumbiji block (185.0 ha) area was planted during the period of 1980 to 1982. This area has a potential area preceded by early plantation failures. However, in remarkable many cases, there are also unplanted areas for unspecified reasons. This location, like Kagera, has large ravines. Selem (14 ha) was planted between 1978 and 1979. It has more than 100 stems per ha and is characterized as having well growing rubber. It is planted with good cover crop and has a closed canopy.

Individual areas in Pemba

Bahren: This was planted in 1979 and covers an area of 9.5 ha. It has good tree with a good canopy closure. It has the highest number of stems amongst rubber sites.

Basra: The area of Basra was planted in 1982 and covers 20.5 ha. A large of Basra has retarded growing trees. However, there are also examples of good growth plots.

Kangani: the area was planted during 1979 to 1981 and covers an area of 16.5 ha. The density of trees tends to decrease from 400 to 200 in 1981 plantation. The rubber trees in Kangani have a fair growth. Some trees are still affected by remaining coconut trees.

Kishindeni: the whole area was planted in 1979. The major part is characterized by retarded growth and only a small part of the area is covered by cover crop. Grazing of cattle need to be considered as potential problem.

Laraq: The Laraq rubber was planted in 1982. The main part is characterized as having retarded growth. There is also high density of clove trees left. The area has a very limited part planted with cover crop.

Maziwani: The Maziwani plantation covers the largest area in Pemba. The area has plantations of 1979, 1980 and 1981. There is very good development, though retarded growth prevails in some

spots. There are more leftovers of clove trees which are contributing to retarded growth. Most of Maziwani area lacks cover crops.

Ngezi: The Ngezi area was planted in 1977 and 1978 with equal areas. Some of the areas in plantation show retarded growth and others show a very good performance. The extent of cover crop is very limited all over.

Pogwa: The Pogwa area was mainly planted in 1979 and 1981. There is a wide variation of growth as there are examples of plots with trees of retarded growth up to very good growth. The extent of cover crop is very limited all over.

Sanaa: The area of Sanaa covers almost 200 ha of rubber planted in 1978, 1979, 1980 and 1982. The 1980 area is characterized by having a mixture of plots with good and poor growth. The cover crop within this area is not satisfactorily established and area lacks cover crop completely.

MANAGEMENT OBJECTIVES

The management of the rubber plantations in Zanzibar object at rising financial collection of the state. However, specific goals of the management programmers are:

1. *To manage the rubber plantations through appropriate rubber husbandry in order to fulfill environmental obligations of the plantations.*
2. *To promote sound tapping practices to ensure maximum benefits with minimum effects to trees.*
3. *To process raw latex and market Zanzibar rubber in local and foreign markets*
4. *To create employment opportunities to rural population, improve subsequently their living standards and skills.*
5. *To train local personnel in order to gain adequate knowledge and skills in rubber management and processing technology.*
6. *To manage the plantations and the adjoining lands towards sustainable land use.*
7. *To generate revenues and increase foreign earning capacity of Zanzibar*
8. *To rehabilitate the existing infrastructure, purchase necessary machinery, vehicles and tapping equipment.*

TAPPING RUBBER TREES

Tapping can be done in one of the following techniques and systems. The international adopted standard tapping system is the half spiral alternate daily. The system is identified as S/2. D2 (times 400) - 100% or A-B system as known Zanzibar. The half spire third daily system is denoted by S2.D3 (times 67%) which means that the individual tree are tapped every third day. The intensity of the third daily system is about 66.7 of the alternate daily taping system. If the tree is taped full spiral which may happen in the later tapping stages, the notation would be S/1.D/2 (times 400%) – 200%. Tapping system to be adopted for stands that have been tapped for at least four years will be S/2.D2 (times 400)- 100% or A-B system. The newly opened panels will be tapes at less intensity to avoid tree tapping shocks which might result into tree wilting and crop loss. Double taping will be introduce to compensate to the holidays and week ends

More than 90 % of the trees have average diameter varying from 22 cm to 50 cm due for tapping (annex 1). The plantations are capable of producing at least **5,176** tons of latex rubber annually at S2D3 system (67 %) with no stimulants (Annex 2). This capacity can only be possible if all necessary field operations including tapping all tappable trees; cleaning all the plantations; training of tapers; supplying sufficient tapping equipment; fertilizing rubber trees; establishing workable motivation scheme for workers and ensuring close supervision especially in tapping operation are performed regularly and timely. Nevertheless, production can be raised to **7,725** tons at S2.D2 system (100 %) (PAY Forestry Consultancy, 1995).

BENEFICIARIES

While the management objectives focus on diversifying Zanzibar monoculture economy, the plantation has direct effect on poverty alleviation in the surrounding villages and communities. The plantations are capable of employing about 500 workers.

RUBBER PLANTATIONS AND ECOTOURISM

Kichwele is a historic place. Besides having large area covered with rubber plantation, small areas of mixed forest harbors good number of bird, duckers, reptile, and monkeys. Butterflies, bees and millipede enjoy the ecosystems. The densely shaded sites at the station allow ecotourism activities to be established.

Nature trails

There is a potential of opening nature trails within the mixed forest as from block one to Block 1 to block No. 2 in Kagera block. Within here one can have a good chance to visualize natural vegetation, bamboos, reptile, birds, butterflies and natural valley with seasonal streams. Wooden Boardwalks can be constructed in swamp area to allow visitors enjoy the scene during wet seasons

Botanical and spices tour development – (Agro-tourism)

The Muembe majogoo area can be developed for spices. Consultation can be made with Kizimbani training and research center to gain experience

Open areas within rubber plantation will be planted with attractive spices and forest species aiming at combining rubber activities with agro-tourism activities. Sri Lanka is the leading country in the world in this business of agro- tourism by having tourist spices garden. Experience can be gained by visiting this country.

Rubber processing tour

The existing rubber processing plant in Kichwele is very old. Experts in rubber processing techniques claimed that this rolling machined were used before the Second World War in India. They, therefore, form a historic scene for visitors and locals. This note also pee on the idea of introducing rubber industry historic tour to rolling machine to both outsider and citizen of Zanzibar. Visitor will have a chance to learn rubber collection, mixing, rolling and drying.

Open areas and gaps in the rubber plantations and near by-forest can be converted to spices plot that can be of great help in promoting spices tour.

Tapping demo-tours

Good number of people does not understand how rubber is harvested. Some people don't know even whether rubber is a tree or not.

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Annex 1: Existing area of rubber plantations and stems/ha in Unguja

Unguja		Pemba	
Block	Productive area (ha)	Block	Productive Area
Kagera (291.5 ha)	262	Maziwani	199
Msumbiji (185 ha)	167	Sanaa/Bahrain	187
Mkiwa (146.5 ha)	50	Pogwa	54.9
Selem (14 ha)	12.6	Makangale	35
		Basra	18.5
		Kangani	14.9
		Kishindeni	32.9
		Laaraq	27
Sub-total	491.6	Sub-total	569.2
TOTAL PRODUCTIVE AREA		10608 HA	

Annex 2: Production estimates.

Year	Total (Tons)
	Tons of DRC
2002	5,530
2003	5,530
2004	5,388
2005	5,268
2006	5,076