

**KWALE FRUIT, VEGETABLE AND LIVESTOCK
PRODUCTION PROJECT**

A SASOL PROPOSAL

EXECUTIVE SUMMARY

1. Kwale is a Coastal District with 92% agricultural land and population density estimated as 60 persons per sq. km in 1993.
2. Morbidity in Kwale is dominated by largely preventable diseases and stunting in children is prevalent.
3. Housing and water for household use are low quality
4. Poverty is prevalent in Kwale and household incomes are low.
5. The community organisation is evidenced by existence 46 cooperatives and 471 women groups.
6. Agricultural employs a large proportion of the labour force but is constrained by low facility of soils, harsh climatic condition low level of technical know-how, fire outbreaks, crop and animal diseases, inappropriate seed, poor marketing and distribution of agricultural produce.
7. The production problems can be combated through education in schools and organised women self-help groups.
8. Provision of marketing outlets and transport is the basic push required to promote production in the district.
9. Sasol has organised for marketing of fruits, vegetables and livestock products through Darad for distribution to the tourist market.
10. This project seeks to promote production of vegetables, fruits and livestock in Kwale for the provision to this market, for the benefit of Kwale residents.

1. KWALE SOCIAL ECONOMIC CONDITIONS

Kwale District in the coast province lies along the Indian Ocean. Its topography is divisible into four zones.

a. The coast plain lies below 30m above sea level. A barrier coral reef runs along the coast. The effect of the coral reef results in sand beaches which provide the basis of the tourist industry.

b. The foot plateau between 60-135m has extensive sandy soils.

c. Coastal uplands in the district forming the Shimba hills have an

altitude 150 - 462 metres. The uplands have a medium to high agricultural potential.

d. Nyika Plateau, the hinterland of Kwale starts at the foothills of the Shimba hills. It lies in the rainshadow of the hills and has an altitude of 180-300m. This land is suitable for livestock.

1.1 Population

The population of Kwale is largely Mijikenda. Making upto 82% of the total population. The Digo living along the coastal strip and Duruma living inland are the largest groups.

The Kamba make up 9.9% of the total population. The balance 9.1% of the population is made up of many other groups.

1979 census showed total population of 288,363. Projections based on this census show the population of the District as 449573 in 1990 and 500562 in 1993.

Population distribution varies according to agro-ecological variables. It ranges between 8 persons per sq. km. in the Nyika plateau to 315 persons per sq. km in the Shimba hills. Average population density is 34 persons per sq. km.

46% of the population in the 1979 census was less than 15 years while only 4% was above 60 according to the Central Bureau of Statistics 1979 Kenya Population Census.

1.2 Land

Total district area is 832,200 hectares, of which 92% is considered agricultural land. The district average land per household by 1979 census was 14.76 ha. This land holding varied from 1.56 ha. per household in Tiwi to 58.7 ha. in Mwereni.

Population pressure would however increase as the average population is expected to increase from 34 persons per sq. km. in 1979 to 60 persons per sq. km. in 1993.

However, although the population pressure is not acute, land usage is limited by the low fertility.

1.3 Status

Morbidity and mortality are dominated by largely preventable diseases.

These include :

Malaria	Respiratory diseases
Skin diseases	Intestinal worms
Diarrhoeal diseases	urinary Tract Infections
Eye infections.	

Malaria is by far the most prevalent disease giving rise to about 40% of all the morbidity cases.

There are 36 health facilities for the district.

1.4 Nutrition

Stunting and wasting indicate a low state of nutrition. Kwale is considered at nutritional risk with 43.4% stunting and 2.9% wasting in children.

Low level of education in mothers, social factors and religious beliefs, in addition to low incomes determine the low level of nutrition.

Vegetables and fruits are available in areas where agro-ecological conditions are suitable seasonally. There is a correlation between under nutrition in children and seasonality.

The other group which is at risk in under nutrition is the women.

1.5 Housing

Most of the housing in Kwale is made of mud walls with thatched roofs. Sanitation is generally lacking in the bulk of households.

1.6 Water

More than half of the households in Kwale use water from unclean sources. This proportion is higher during the wet season as there is more reliance on unprotected wells and dams. As a result more than half the population is exposed to water-borne and water related diseases.

The categories of water sources in a descending order of importance are, piped water schemes, rivers/streams, dams, boreholes, uprooted wells, protected wells.

Water harvesting is virtually non-existent even though it is possible in 15% of the total households which has either iron sheeting or tile roofed houses. This maybe due to the non-extension of affordable water tanks.

1.7 Incomes

The economy of Kwale is essentially agricultural, with tourism, fisheries and the small-scale commercial and informal sectors as minor players.

Rural Household Budget Survey 1981/82 showed that the average income budget per household as Ksh 937. Half of this income was however derived from wages and salaries of outmigrant labour.

Out of the estimated labour force 172,486 in 1988, 130,000 were employed in agricultural and agro-related activities while the balance sought employment elsewhere. The public sectors, large firms, private, business/commercial self employment catered for about a third of the available labour force.

1.8 Community Organisations

There are 46 cooperatives and 471 women self-help groups in Kwale. The purpose of these groups is the mobilisation of resources both financial and human for the improvement of the members welfare.

Average membership of the cooperatives is 20 and that of women groups is 30.

2. CONSTRAINTS OF THE AGRICULTURAL SECTOR IN KWALE

Although 130,000 out of the total labour force of 172,486 persons found employment in the agricultural sector, their contribution was just about 60% of the family income.

Second, even though a large labour force is employed in agriculture the nutritional status is low.

The above inertial forces have brought about constraints which hinder the realisation of potential. The major constraints of agricultural production are listed below.

2.1 Low Fertility Land, Harsh Climatic Conditions and Low-level of Technical Knowledge in Agriculture.

Production factors inadequency lead to poor production Kwale. Together the low fertility of soil in large ares of Kwale, the distribution of rain and low educational level in the district, combine to give low earning to farmers.

2.2 Fire Outbreaks, Crop and Animal Diseases, Inappropriate Seed

The low level of technical knowledge by the farmers leads to bush clearing by fire. These fires usually run out of control and devastate large areas. Many farmers fear developing their farms only to be destroyed by fire.

Major diseases like the Rhinoceros beetle in coconut are coastal only. There has been little in the way of research of the special crop disease as resulting from the high temperature, high humidity conditions found at the coast.

Usually inappropriate seeds are used in the coast as suitable strains are not developed. For example the planting of drumhead cabbage instead of the more suitable sugarloaf or copenhagen cabbages.

2.3 Poor Marketing and Distribution of Agricultural Produce.

Lack of transport facilities, poor road network and infrastructure prevent farmers from getting their produce to the markets. It leads therefore to low production. During the rainy season there is almost a total lack of transport.

Low production, poor packing and unreliability of supply does not create a ready market with the right incentives and profit margins to encourage production.

Horticultural production in Kwale is severely limited by these constraints as the products are perishable. The co-operatives are currently not capable to buy in bulk, collect and market these products. They do not have the necessary capital and management skills for such an undertaking. In the meantime horticultural produce is being carried for more than 600km for marketing in the Kwale tourist Hotels.

3. COMBATING THE AGRICULTURAL CONSTRAINTS IN KWALE

The major constraints of agricultural production are related to lack of know-how. How to manage the marginal soils, to deal with a poor rainfall distribution, organise farms and manage production for effective marketing.

In the long-run the schools approach to development will go a long way into solving these problems. The children under 15 years form 50% of the population and many of them will be employed in the farming sector. Equipping them during their school days on effective agricultural production will have a significant impact on the production in Kwale.

On the short run however one of the possible ways to start improving production and the households incomes in Kwale is through the Women Development Groups. These groups have the relevant skills in organisation of production, however, they lack transport means and individual group production is too small for effective marketing. Several groups could however produce large enough loads for marketing.

3.1 The Schools Approach.

Ultimately the schools approach aims to train ASAL population in environmentally sound and sustainable production, provide viable basis to achieve food sufficiency, adequate water supply, reasonable health and shelter, appropriate education, equal opportunity and generally enable the population to lead a dignified life. The objectives for the approach are:

- i. To provide water and sanitation to schools and water net for their catchment areas.
- ii. To improve the nutritional status, as well as the health and hygiene of students and their community of origin.
- iii. To train students and their parents with regard to variable production systems and related ecological management.
- iv. To train students and their parents regarding health, hygiene, and general preventative health care.
- v. To extend ecologically sound production systems to the school catchments.
- vi. To develop community based artisanal skills for maintenance and extension of water harvesting infrastructure.

3.2 Women Self-Help Groups

The aim of self-help groups is to build peoples capacity to help themselves by undertaking that have a direct impact on their welfare. This should lead to improving the quality of their lives, their capacity to organise themselves for cooperative action and their ability to employ profitably locally available resources.

The women groups have the potential to execute activities for the development of their families and their communities. The hinderance of their performance in Kwale is two fold. Firstly is lack of leadership, managerial and creative skills. Secondly and more important is the lack of markets and marketing skills for goods produced.

To help the women groups make a quantum leap in the production, it is necessary to provide the necessary education and institutional support.

1. Educate the women on better farm management methods and better farming techniques.
2. Provide effective extension services for:
 - a. Improved crop husbandry
 - b. Use of correct varieties
 - c. Manure and fertilizer use
 - d. Land preparation and disease
 - e. Improved disease control and animal health
3. Improving marketing and distribution of agricultural produce to prevent post-harvest losses.

4. THE PROJECT

The Tourism Industry was worth Kenya pounds 432,000,000 in 1989. Half of this industry is based in the coast province and Kwale District has a share of 20% of the tourist industry resorts.

Though this is a large market for agricultural produce and especially horticultural products, there is virtually no business being done in Kwale towards this end. It stands to reason that the district should benefit from the industry it has accommodated so effectively. Currently the significant incomes to the District from Tourism is through employment, quarry products, coconut found thatches and only minor agricultural sales.

4.1 Community Origins of the Project

The objective of cooperatives and self help groups has basically been the mobilisation of human and material resources for the development and improvement of the members welfare. In Kwale this has so far through the 46 cooperatives and 471 women groups been geared towards:

- enabling smallscale farmers to participate in the country's economic development.
- marketing farmers produce through organised efforts
- emphasising quality produce to ensure higher prices
- providing marketing information.

The groups have thus been borne with desire to better themselves and their communities through pooling their resources to achieve better deals overall. Despite their efforts they have not broken into the tough but inactive tourist market. This has been due to their unreliability and inconstancy of supply. This has been borne out of production of only rainfed and seasonal crops only. Usually the inadequate rate of return. Coupled with an inefficient expensive transport usually means disjointed production.

The groups therefore need a steady production of products which are required by the tourist market.

4.2 Project Design

This project is designed to provide institutional support to identified women groups in the following areas:

- a. Farm management
- b. Crop husbandry
- c. Animal production
- e. Marketing

The project includes the extension services in the field of :

- i. Bio intensive agriculture
- ii. Farm structure design
- iii. Water harvesting techniques
- iv. Food preservation

4.3 Market

The tourist market in the South Coast presents a huge market for fruits, vegetable and livestock products.

Sasol has made a pact with Darad which is a subsidiary of Leisure Lodges. Darad farm which has large tracts of land adjacent to the beach hotels requires additional supplies of vegetables, fruits and animal product from outgrowers. The following are some of the products required.

- | | |
|----------------------|------------------------------------|
| 1. Onions | 16. Arrow roots |
| 2. Garlic | 17. French beans |
| 3. Leeks-Italian | 18. Sweet potatoes |
| 4. Oranges | 19. Avocadoes |
| 5. Cabbage | 20. Grapefruit |
| 6. Parsley | 21. Guava |
| 7. Thyme | 22. Papaya - Solo, Sunrise, Capoho |
| 8. Rosemary | 23. Passion fruit |
| 9. Marjoram | 24. Bananas |
| 10. Asparagus | 25. Chicken |
| 11. Brussels sprouts | 26. Eggs |
| 12. Garden peas | 27. Ducks |
| 13. Carrots | 28. Pork |
| 14. Kohrati | 29. Milk |
| 15. Pineapples | |

The daily requirement for vegetables and fruits is Ksh. 22,500 and that of livestock is in the same magnitude initially. Darad expects to expand its catchment market to non hotel outlets around Ukunda. This market which includes the private cottages and homes is approximately as large as the hotel market.

In the long run however the produce from Kwale would be marketed in Mombasa. Currently most of the farm produce in Mombasa is produced up-country and has to be tracked for distances in excess of 600km. with the ever increasing transport costs. It is necessary to develop nearby source of agricultural products for Mombasa.

4.4 Involvement of Women Groups in Production.

Women groups have been involved in agricultural production on hoc basis. Their major problems have been those of transport, marketing and know-how.

Successful production by women groups would lead to improvement of

income, health nutrition, and food security for individual households and their communities as a whole

Production for the tourist market through Darad is the engine which could provide the driving force as the starting point for the wider market at Mombasa.

The pilot project would be conducted with four groups with 120 household around the Shimba-hills centre. The following groups have been identified as core groups.

1. Bidii Women Group
2. Huruma Women Group
3. Vinya wa Manyatta Women Group
4. Mama Safi Women Group

These groups are in the Shimba hills which is medium to high agricultural area according to Jaesthold. et. al.

After initiation of the project in the four groups expansion to other groups will be undertaken.

Supplying the compliment of vegetables and fruits required per day by the market would mean an income of Ksh. 4000 per household. Together with the livestock products the household income would double to Ksh.800,000

For years round production the participants would have to be trained to gain the know-how in Bio-intensive agriculture, farm structure, design, water harvesting and food preservation. These areas taken together will enable production which is not depended on rainfall ,recycling of wasted by composting for fertility improvement control of diseases and depending of the farm on its resources.

4.5 Beneficiaries

The primary beneficiaries for the project are the women and their households. As more vegetables and fruits are produced in the households, their consumption in the household increases.

Further as the incomes of the household improves, housing improves as well as nutrition in the household especially that of children. More amenities can be purchased leading to increased trading at the local trading centre and need for artisanal skills provides employment to artisans. Eventually the community as a whole is improved.

4.6 Project Budget

This is a two year project and the budget estimates are as follows:

Year 1

Purchase of a four ton lorry	6000,000
Revolving fund (weekly turnover.	120,000
Agronomist (3 months @30,000 sh. pm..	90,000
Overhead	360,000
Motorbike cost	120,000
Food preservation (training/manuals.	200,000
Community organisation & training	240,000
Inputs (Seed.	5,000
Lorry running cost 6 months	
@ Ksh. 15 for 100 km a day	215,000
Motorcycle running cost	15,000

2,110,000

NOTES.

1. The revolving fund enables the farmers to be paid on the spot on the delivery of produce.
2. It is estimated that for the first six months the transport lorry will not be able to cover its costs as production will be too low. From that time on, recovery on transport should be able to replace the transport eventually.
3. The special attention on food preservation is intended to guard against wastage of extra production and eventual development of preserved foods eg. dried vegetables, jams etc. In the long run this would be the beginning of a cottage agro-industry.

Year 2 Ksh.

20 shallow wells	600,000
Agronomist (3 months @ 30,000.	90,000
Community organisation	70,000
Food preservation	70,000
Overhead	360,000

1,190,000

Note:

The need for shallow wells arises from the nature of rain distribution in Kwale. For year round production some water harvesting technique is required. This maybe shallow well, water tanks etc. Shallow well is used for convenience in budgeting. Total project budget is Ksh. 3,200,000 or 200,000 Guilders.

4.7 Sasol's Role in the Project.

Sasol as the implementing agency of the programme has to:

1. Undertake community organisation and organise production groups.
2. Provide the technical input for effective agricultural production through organic farming and water harvesting.
3. Organise inputs especially suitable seed.
4. Liaise with Darad for produce marketing.
5. Supervise produce buying, collection and delivery to Darad central facilities for distribution, at the same time supervising the buying revolving fund.
6. Introduce new crops in the area as required by the hotel industry.

Bidii Women Group
Box Shimba Hill Centre
Shimba Hill

27/5/1992

Sasol Foundation.
Box 14333
Nairobi

Ref: Ukuzaji Wa Mboga

Kikundi chetu kina nia ya kukuza mboga ikiwa tutapata uhakika wa soko na usafirishaji wa mali.

Hapo awali tumewahi kukuza mboga lakini tukapata hasara kwa sababu ya kukosa soko.

Ikiwa tutakuza mboga ambazo zitachukuliwa shambani itakuwa faida kuu kwa kikundi chetu. Hii itatupatia nguvu ya kufanya maendeleo makubwa manyumbani mwetu. Vikundi vingine viko tayari kama sisi kufanya kazi hii ikiwa pigamizi hizo tumetaja hapo juu zitaondolewa.

Sisi wenu

1. Mrs Grace Muthengi
 2. Mrs Agnes Makau
- kwa niaba ya kikundi cha
bidii

BIDII WOMEN GROUP
TRANSLATION

Ref: Vegetable Growing

The group has the intention of growing vegetables if we have assurance of a market and transport facilities.

Previously we have tried growing vegetables ending with net loses to lack of market.

If we grow vegetables that will be picked at the farm gate it would be a great benefit to the group. This will enable us to achieve material gain for general improvement of our households. Allied groups are like us also ready to get involved in vegetable growing for market if the two stumbling blocks mentioned above are removed.

Mrs Grace Muthengi is the chairlady
of Bidii Women Group
Mrs Agnes Makau is a member of
the group.

Darad-Vegetable and Fruit

Daily requirement.

1. Onions	10x10 kg nets	@ 130 sh. per net	1300
2. garlic	5 kg	@ 25 sh. per kilo	125
3. Italian Leeks	50-100 kg	@ 25 sh. " "	2,500
4. Oranges	200-500 kg	@ 6-11 sh. " "	4000
5. Cabbage	50-100 kg.	@ 10-12 sh. " "	1,000
	sugarloaf Copenhagen		
6. Parsley	1 kg	@ 200 sh	200
7. Thyme	"	"	200
8. Rosemary	"	"	200
9. Majoran	10 kg.	200 sh	2,000
10. Asparagus	20-30 kg	@ 100 sh.	3,000
11. Brussels Sponts	5 kg	@ 30 sh.	150
12. Garden peas	15 kg shelled	@ 40 sh.	600
13. Carrots	100 kg	@ 10 sh.	1,000
14. Kohrabi			
15. Pineapples			
17. Arrow roots	20 kg	20 sh.	200
18. Sweet potatoes	20kg	@ 10 sh.	200
19. Avocados	500 pieces	@ 3 sh.	1,500
20. Grapefruit	50kg/day 150 pieces	@ 2 sh. piece	300
21. Guava	2 bags 1200 pieces	@ 2 sh. piece	2,400
22. Papaya	200 pieces	@ 8 sh piece	1,600
(solo, sunrise, capoho.			
23. Passion Fruit	50 kg 400 pieces	@ 1 sh. piece	400
24. Bananas	20 bunches	@ 70 sh. bunch	1,400

22,500

Note

1. Onion requirement is unlimited due to possible storage.
2. This is a conservative estimate.