



## Original Research Article

# Benefits of *Eucalyptus camaldulensis* Plantations to Local Community in Kenana Sugar Cane Project, Sudan

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## ABSTRACT

### Keywords

Amenity, building poles, environment, firewood and forest

Kenana sugar company (K.S.C.) plantations was planted by *Eucalyptus camaldulensis*. This tree is characterized by fast growing which gives continuous products. The objectives of the study are to explore and highlight the benefits of forest plantations to the local community in the area and to suggest recommendations for conservation of the plantations. The methodology consists of questionnaire for the local people and interview for the officials staff who work in the plantation. The collected data were analyzed using Statistical Package of Social Sciences. The results of the study explained that, the local community gain a lot of benefits and services from the plantations. Such as jobs, provision of forest products and non-forest products in addition to the environmental effects on climate and soil.

## Introduction

Kenana Sugar Project (KSP) located near Rabak town on the eastern bank of White Nile River,. It lies in Jabalain locality in Latitude 13° 5 N, Longitude 33° E, and altitude of 410 meter above sea level and about 290 km from Khartoum. The area of the irrigated plantation is 8333 hectares planted by *Eucalyptus camaldulensis*, *Eucalyptus microthica* associated with species of *Acacia senegal*, *Acacia seyal* and *Acacia nilotica* (KSP, 1999). The forests of *Eucalyptus* plantation are scattered around the villages and camps of K.S.P. The *Eucalyptus* plantation commenced in 1993-1994 to compensate the natural vegetation

removed for establishing the project. Ahmed (2000) reported that, the plantation plays an environmental role such as reduces temperature, minimizes wind speed, provides grazing sites for domestic animals and regenerates income to the local population and kenana Company. Ahmed (2000) reported that, the aims of plantations of KSP are to meet the domestic needs of firewood, charcoal and building poles, sand-dune fixation, timber for such purposes as railway sleepers, house construction and rough furniture for rural areas gum arabic.

*Eucalyptus* species serves man well. It has more useful purpose than any other tree on earth. For example, it provides forest cover for any terrain from mountains to swamps. It gives shade and acts as a windbreak. It furnishes gum, resin, oil, and nectar. When cut it is used for fuel, construction, poles, posts, and hard wood products. The *Eucalyptus* even has the reputation of improving the climate in which it grows (Robert, 1997). It also provides shade. In regard to crop production, it reduced wind damage to crops thus yields are greater: Windbreaks protect stock improving their condition. Milk cows give more milk, and sheared sheep suffer less (FAO, 1978). *Eucalyptus* has the scent of freshness and purification. It smells healthy, and consequently, its oils have been used in both folk and modern medicine. The hanging of *Eucalyptus* leaves in houses was common as well as boiling *Eucalyptus* leaves in stoves allowing the peppermint odor to permeate the air, FAO (1978). *Eucalyptus* flowers provide nectar for bees especially when other flowers are not available. Some species bloom continuously and hence a constant supply of nectar is available. Besides being a food, some claimed that *Eucalyptus* honey could settle nerves and relieve irritation in the mucous membranes. *Eucalyptus* honey has strong peppermint taste and odor that makes it less desirable than other honey, Robert (1997). In Australia use *Eucalyptus* roots as a source of food. They also cook and eat the roots. Children eat the flakes from manna gum. Dried *Eucalyptus* leaves are fed to horses, cattle, and sheep, FAO (1991).

### **Problem**

The population who settle around the KSP are in need of forest products, because there is a shortage of such products in the area. Therefore the *Eucalyptus* plantations may

solve the problem of the residents in different ways.

The present study objectives are as follows:

1. To highlight the benefits and services of *Eucalyptus* plantation in the area.
2. To investigate the benefits and services that *Eucalyptus* plantation provide to local community.
3. To draw conclusions and recommendation for future studies.

### **Methodology**

The local population who live around the forest project are mainly workers. The target group is sixty respondents from workers. The methods used compose of a questionnaire, the questions are simple, clear and easy to answer. Interview was also used for collecting the data from the official staff. For both methods the questions concentrated on the multiple uses of *Eucalyptus* to the local population. Observations of the plantation products are also used. The collected data were analysed using statistical package of social sciences (SPSS). The results were presented in forms of frequencies and tables.

### **Result and Discussion**

#### **Benefits of the *Eucalyptus* plantation**

#### **Employments**

The director of the *Eucalyptus* plantation said that, the local population worked in cattle herding, agricultural activities and daily paid jobs prior the establishment of the plantations. Recently, the project provides 300 work opportunities in forest plantations participated in founding the new well-developed community. Also creates 20000 permanent jobs.

### **Sources of energy**

Table (1) shows that, 87% of the total respondents used charcoal and fuel wood as a main source energy. Those who used gas account for 8% and 5% used alternative energy sources. This indicated that, there is availability of *Eucalyptus* wood in the area and the population use it as fuel. This is the same as reported by Ahmed (2000).

Table (2) shows that 93% of respondents mentioned that, their income has improved, due to the availability of work in the project. This is the same as reported by Rahama (2000), the plantation regenerates income to the local population and kenana Company.

### **Availability of building poles**

One of the basic aims of the project was to make the building poles available for the inhabitants. Fortunately, the project has managed to fulfill such a need. Table (3) shows that 67% of the respondents obtained *Eucalyptus* plantation their building poles from the forest plantation project while 33% of them obtained their building poles from the markets. This is the same as stated by Ahmed (1989), the aims of plantations of KSP are to meet the domestic needs of firewood, charcoal and building poles.

### **Plantation contribution to the local community**

The company from the very early stages directed its efforts to establish permanent settlements. The company has created adequate social resources such as education, drinking water supplies and medical services. The forest project plantation has contributed to maintain the public services through providing supporting schemes such as settlement, entertainment and amenity.

Table (4) shows that 78% of the respondents answered that the company managed to establish projects of settlement, while 15% and 7% answered that the project provide good places for amenity and entertainment facilities within public clubs such as TVs and satellite dishes and others respectively. These services are also mentioned by Ahmed (2000).

### **Availability of plantation products**

Table (5) shows that 18% of the respondents can obtain free seedlings from the forest project. This can raise the awareness of the local community. While 35% of them answered that the plantations supply them by fuelwood. On the other hand 17% and 15% of them said that they obtained fuel wood, building poles, animals' fodder and drinking water from the project respectively. This is the same as reported by Ahmed (1989).

The forest foundation tends to fulfill environmental and socio-economical aspects by providing employment opportunities distributed in raising the living standard, education, health, drinking water, jobs and amenity said by the Director of the project.

### **Other benefits from the plantation**

The people who were interviewed mentioned that, the local community gained a lot of environmental benefits from the plantation, represented sand-dune fixation, protects the micro water sheds around the drains, windbreak protect the crops. Also provides nectar for bees during the season of flowering. These facts are represented in the same as reported by (FAO, 1978).

The population density in the study area is high and exerts pressure on natural resources reflected on the forest products for building requirements and firewood from the *Eucalyptus* forest plantation. KSP plays an important role in providing the benefits to the local community. Such as creating 300 work opportunities, using fuelwood for heating and cooking food and making coffee and tea. The *Eucalyptus* plantation contributes to the development of living standards of the local community such as increase in their income and provision of jobs, education, health, drinking water.

**Recommendations**

The study come out with the following recommendations:

1. Conservation of KSP from illicit cutting of trees is very important because the forests provide the forest products and environmental services to the local community.
2. KSP should be sustainably managed so as to provide the benefits towards the population growth.
3. Extension unit should be established in order to raise awareness amonge the local commnity on the importance of forest.
4. The area of forest should be increased to create more opportunities for jobs and services.

**Table.1** Sources of energy

| Discription             | Frequency | Percentage |
|-------------------------|-----------|------------|
| Charcoal, and fuel wood | 52        | 87         |
| Gas                     | 5         | 8          |
| Other sources           | 3         | 5          |
| Total                   | 60        | 100        |

**Table.2** Income improvement

| Discription | Frequency | Percentage |
|-------------|-----------|------------|
| Yes         | 56        | 93         |
| No          | 4         | 7          |
| Total       | 60        | 100        |

**Table.3** Availability of building poles

| Discription    | Frequency | Percentage |
|----------------|-----------|------------|
| Forest project | 40        | 67         |
| The market     | 20        | 33         |
| Total          | 60        | 100        |

**Table.4** Public services

| Discription   | Frequency | Percentage |
|---------------|-----------|------------|
| Settlement    | 47        | 78         |
| Amenity       | 9         | 15         |
| Entertainment | 4         | 7          |
| Total         | 60        | 100        |

**Table.5** Availability of plantation products

| Discription    | Frequency | Percentage |
|----------------|-----------|------------|
| Seedlings      | 11        | 18         |
| Fuel wood      | 21        | 35         |
| Building poles | 10        | 17         |
| Fodder         | 9         | 15         |
| Drinking water | 9         | 15         |
| Total          | 60        | 100%       |

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