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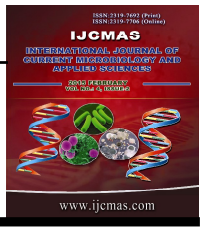

Original Research Article

Refugees consumption of Forest Products prior to Repatriation Kuna Zeberma Camp, Kassab Locality, Gedaref State

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Keywords

Area, Firewood, Natural forest, Refugees and Trees

A B S T R A C T

The refugees depend entirely on forest for building materials, firewood and charcoal. The damage of forest near refugees' camp was very severe. Refugees' activities disturbed the environment through the removal of a lot of trees as building materials, firewood, charcoal, clearing the land for agriculture and establishing the camp and housing and renovation. The objectives the of research are to assess total cutting down of trees, consumption of firewood and charcoal and clearing land for establishing the camp and rehabilitating the degraded area. The archival methods done by the legal authorities were used for the calculation of the total area subjected to removal of trees and consumption of firewood and charcoal. For example, each family is allotted three huts and renovates every five years. Area allotted for agriculture was 4.2 ha per family. Number of trees cut down for building one hut was 60 trees. Two cubic meters of firewood is the consumption of household every year. One ha produces 168 cubic meters of firewood. Each refugee's family is supplied with two sacks of charcoal per month. One cubic meter of woods produce three sacks of charcoal. The result revealed that the total area cleared for housing and agriculture was 13584 ha, which is equivalent to 868096 trees. While the cutting down of trees for building and the renovation of the huts were 1693980 trees. On the other hand the total consumption of whole period from firewood was 75288 cubic meters and the charcoal was 903456 sacks. From the calculation it is obvious that the damage of forest was very serious in the area.

Introduction

Kuna Zeberma Refugees Camp was established in 1985 and repatriated in 1997.The refugees population was about 15685 .The Ethnic Compositions are Tigray and Amhara (Berhane, 1989).The area allocated for agricultural land was 4.2 hectare (ha) per family and 0.13 ha land for housing. The camp is established between Kerebs and khors near Atbara River.The area is described as dense with dominant tress such as *Acacia seyal* and *Acacia senegal* associated with other trees like *Acacia mellifera* and *Balanites aegyptiaca*. The average rainfall is between 570-800 mm annually (Fangama, 2006). The activities of

refugees concentrated on cultivation of sorghum (dura), sesame, collected firewood, non-wood forest products and made charcoal. The land was cleaned from trees for housing, agriculture, building materials and trees are cut down for firewood and charcoal. the huts were built from *Acacia seyal* (talih) trees and renovated each five years , due to the effect of termites on wood and the high probability of talih wood being affected by bores (UNHCR and FNC,2003).Refugees depended entirely on using firewood and charcoal to satisfy their needs for energy. The two main sources of energy are collected from the natural forest along the kereb of Atbara River and Khors near their camp.

They used traditional stoves such as Mangad, Tri- stone Ladaia for cooking and kanon Alsuror has been used by small number of refugees as reported by the Manager of refugees in Sefawa camp (1985). The kereb area is affected, as the soils and small landslides more down the slope, forming a big pile of unstable, loose materials, due to heavy rainfall, moving down to the slope (Stokes etal, 2014). He added that, it needs once forests are cleared on such areas, it is better to use these lands for forests again.

Research problem

Refugees were settled between kerebs of Atbara River and streams. The presence of refugees in the area leads to degradation of the land due to the continuous cutting down of trees to satisfy their demand from forest products. No doubt, the area has been subjected to severe deterioration resulting from removal of large area of natural forest. This may also lead to degradation of the land through erosion by either rain water or wind.

The objectives of research are as follows:

I. To assess the removal of natural forest by refugees during the period of settlement from 1985 to 1997 in forms of:
1 Total cutting down of trees.
2 Consumption of firewood and charcoal.
3 Total area cleared for establishing the camp.
II. To call UNHCR to rehabilitate the degraded area.

Materials and Method

In order to estimate the cutting down of trees, area cleared for establishing the camp, cultivation, housing, renovation, consumption of firewood and charcoal using the statistical archival methods done by COR (1988), UNHCR and FNC (2003) and Tom (2004) as follows:

1. The average of one hectare (ha) of natural forest in East, West and South of Gedaref State contains 720 trees (Tom, 2004).
2. An area allocated for housing per family is estimated at 0.13 ha (RSA 2004).
3. Each family is allotted three huts and renovates every five years (UNHCR, FNC, 2003).
4. Area allotted for agriculture was about 4.2 ha per family (COR, 1988).
5. Number of trees cut down for building one hut was 60 trees (UNHCR, FNC, 2003).
6. Two cubic meters of firewood is the consumption of a household every year (COR, 1988).
7. One ha of land produces 168 cubic meters of firewood (COR, 1988).
8. Each family of refugees is supplied with two sacks of charcoal per month (Manger of Sefawa Refugees Camp, 1985).
9. One cubic meter of woods produces three sacks of charcoal (Tom, 2004).

Results and Discussion

Area cleared from trees:

Area cleared for camp settlement

The area for settlement is cleared from trees, shrubs and grasses, and three huts were built for each household in about 0.13 ha.The total areas cleared for settlement of about 3137 families equals to 408 ha, if you multiply 0.13 ha/family by 3137 families. Then the number of trees removed for settlement were equals to 393760 trees, if you multiply 408 ha by720 trees/ha. The calculation applied according to the method of (Tom, 2004).

Area cleared for agriculture

Refugees cultivated dura and sesame as food crops. Every household is given an area of 4.2 ha.The total area cleared for agriculture was equals to about 13176 ha that is (3137 familiesx4.2 ha).The total trees removed for agriculture was equals to 9486720 trees, that is (13176x720 trees/ha).

Cutting down trees:

Cutting down trees for building huts

The trees cut down for building huts to each family. They use Dagag, Korki, Matarig and grasses. Each household is allotted three huts. The total huts built were equals to about 9411 huts, that is to say 3137 families multiply by three/family. Then the numbers of trees cut down for housing were equals to 564660 trees that is (9411 huts x 60 trees/hut).

Cutting down trees for renovation huts

The huts are renovated every five years because the wood is affected by termites and wood borers. The huts are renovated two times according to their settlement. Then the total huts renovated were 9411 huts multiply by two equals to about 18822 huts. The numbers of trees cut down for renovation were equals to about 1129320 trees, that is (18822 huts x 60 trees/ hut). UNHCR and (UNHCR, FNC, 2003).FNC (2003) archives are used.

Consumption of firewood

Refugees cooked their Angaira (type of food used instead of bread) and other food using firewood in traditional stoves. Each family consumed two cubic meters of firewood every year. There was (12-fold increase) in consumption of firewood. The total consumption of firewood during their resident was equals to about 75288 cubic meters, which is (12-fold increase x 2 x cubic meters x 3137 families). Using the archive of COR (1988) as reported. When we change the consumption of firewood into trees the result is 75288 cubic meters divided by 168 cubic meters/ha and multiplied by 720 trees/ha equals to about 322560 trees.

Consumption charcoal

Refugees used charcoal for making coffee and tea. They are longing to drink a lot of coffee during the day according to their culture. The total consumption of charcoal was equals to about 903456 sacks of charcoal, where (3137 families x two sacks/family/month x12 sacks/year x 12 years). When change the consumption of charcoal to removal trees the result is 903456 sacks divided by 3sacks/ha, and 168 cubic meters/ha, and multiply by 720 trees/ha equals to about 1290651 trees.

The result revealed that the total area cleared for housing and agriculture was 13584 ha, which is equals to about 9780480 trees.

While the cutting down of trees for building and renovation of the huts were 1693980 trees. On the other hand the total consumption of the whole period from firewood was 75288 cubic meters and the charcoal was 903456 sacks. From the calculation it is obvious that the damage of forest was very serious in the area.

The study found out that the damaged on the natural forest resulted in removal of huge number of trees from land. Then the area became opened then it was exposed to erosion by rainwater and wind. The type of species change to poor ones.

Recommendations

The study has come out with the following recommendations:

1. The refugees camps should be established after advanced study to avoid environmental degradation of the fragile areas such as kereb and khors.
2. Raise the environmental awareness to minimize the damage that can occur around the area settled by refugees.
3. Establish large plantations in refugees areas to provide them with the necessary building materials and fuel wood.
4. Control the cutting down of trees in refugees settlements area.

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