

The Importance of Non-Wood Forest Products In improving Of Livelihoods of Rural Communities in WadiSaleh Locality-Central Darfur State-Sudan

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Abstract: Non wood forest products (NWFP) play a crucial role in the daily life and welfare of people all over the world. The aim of this study was to assess the importance of Non-wood forest products in improving livelihood of rural communities in Wadisaleh locality-central Darfur state-Sudan. The data collection depends mainly on the primary data which includes general survey and observations to the study area. Five villages were selected randomly from the total villages in the study area. Total of 90 household were selected as sample size from these villages which constituted about 10%. The questionnaire was design to collect the information's from the household in order to achieve the objectives of this study. Beside these, focus groups discussion was conducted with stakeholder and chick list with forest manager at the state level. The majority of respondents (97%) were dependents on forest related activities for subsistence and income diversification. And also indicated that collection of NWFPs is affected by the economic, social, cultural and geographical location of households, and it was performed by all household members, and that women have the highest share in collection process (59%). Then the study revealed that about 78% of the respondents were sold their products in the local markets to the village's traders. The study showed that there were main constraints facing the collectors and marketing of the NTFPs in the study area like low prices of the products, taxes and lack of the transportation means. The study recommended that the forest extension should be strengthened in order to raise awareness and attitude of local communities about the importance of NWFPs, then empowerment of women in study area about production and marketing of NWFPs through capacity building and training.

Keywords: Non-wood forest products, livelihoods, Rural Community, Central Darfur State, Sudan

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I. Introduction

Non-Wood Forest Products (NWFPs) have in the past been referred to „Minor“ Forest Products. The terminology was only introduced in 1989 and refers to all tangible plant and animal products (Other Than Industrial Timber) that come from tropical and boreal forests and other vegetation systems, and that are used by local people for subsistence and trade (FAO, 1991). And also NWFPs have been described by FAO (1992) To include all goods as well as services derived from forest or any land under simulation use and this exclude wood in Its forms but include plant materials used for foods, food additive, storage and fodder, cottage and wrapping materials as well as animal, birds, reptiles, fishes for food and leather. NWFPs also include extract such as bark, roots, tuber leaves, fruits, flower seeds, resins and honey and mushroom (Ayenietel., 2003). Townson (1995), Confirmed that NWFPs play important role in the Ghanaian economy by way of supporting rural livelihoods In Ghana. In a survey covering a Wide range of product and users in the Forest Zone of Southern Ghana, Found that 10% of rural people and 38% of households sell forest products. The significance of NWFPs contributing to rural livelihoods and alleviating rural poverty is well known. It is estimated that about 60 million Highly Forest dependent people in Latin America, West Africa And Southeast Asia, with an additional 400 to 500 million people especially communities living inside and on the fringes of forest areas depend on NWFPs for food, shelter, medicine, cash income Etc. Apart from meeting subsistence and Cash income needs of the dependent communities, NWFPs also support large number of small to Large-Scale Enterprises engaged in processing and/or trading of NWFPs based products (FM, 2011). A Potential for contributing to the local economy and improved natural resource management, leading to conservation of the ecosystem and biodiversity of an area. The role and contribution of NWFPs have been crucial in subsistence as livelihood support, in rural economics and biodiversity conservation since times immemorial due to their richness of variety. About 80% of the

population of The developing world depends on NWFPs for their primary health and nutritional Needs (FAO, 2008).

II. Material and Methods

1. Description Of Study Area:

The study was conducted in Central Darfur State in Wadi Saleh locality which located in Southern of the State, and also comprising five administrative units these are (Garsila, Deleeg, Amargadeed, Um Khir And Anjakoty). It lies between Latitude 12.384 N And Longitude 23.13264 E according to (Norwegian Church Aid, 2017). The total area of the locality is 7880 square Kilometers, and the Population are 35632 Person according to (www.Darfurcenter .Gov .Sd/Index.Php/About-Us. Html). The climate of Wadi Saleh Locality belongs to the tropical climate zone, characterized by high temperatures, The average annual rainfall is between 400mm to 600mm. And the topography of the locality is characterized by mountainous and hilly outcrops interspersed within clay soil and clay sandy soil (FNC, 2016). Also the main vegetation Is characterized by several Acacia species of which important multipurpose species, and the area is very rich in NWFPs and provides abundant amounts that constitute an important source of income adding to welfare Of The Local Community.

2. Methods

I. Data Collection

Secondary information for the study was obtained through the review of literature including textbooks, Journals, Network, Reports And Previous Studies That Available. The primary data were collected through a questionnaire to obtain information from the heads of households.

II. Sample Size and Sample Technique

A descriptive household was conducted during the period between October and December 2016. Five villages namely: Garsila, Amargadeed, Dileeg, Mindo and Fojo, were randomly selected to representing the Locality. A Total Number of 90 household heads were chosen representing 10% of total households. Also Group Discussions were held out in these villages to collect information from the local leaders and staff of Forest National Corporation (Fnc) at the state level through checklist about role of Nwfp in improving the livelihoods of local communities in the area.

3. Data Analysis:

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) software (Ver. 16.0) by computing descriptive statistics. The results were presented using frequency counts and percentages. Chi square test was performed to test significant of differences between respondents viewed.

III. Results and Discussions

Table (1): Collection and sale of NWFPs by Respondents

Answers	Frequency	Percentage
Collected	87	97
Not collected	3	3
Total	90	100

Source: Field Survey,

2016

DF = 1, sig = ***, chi-square = 78.400

Ns = not significant, * = significant, ** = high significant, *** = very high significant.

According to the table (1) there were very high significant differences at ($p < .000$) between respondents about the practice of collection of NWFPs. 97% of the respondents were collectors, while only 3% of them practice other activities. The reason that the majority of people depend on NWFPs collection may be attributed to the significant social value of NWFPs to improve their standards of living through preparing local foods and food additives. Beside these NWFPs provide raw materials for small scale industrial processing. We found that the respondents were collected many types of the NWFPs in the study area which includes : *Balanites aegyptiaca* (hajleeg), *Ziziphusspina-christii* (nabag), *Acacia albida* (haraz), *Tamarindus indica* (aradieeb), *Acacia senegal* (hashab), *Cordia africana* (gembeel), *Acacia nilotica* (garad), *Albizia amara* (Arad), *Burkea africana* (tragtrag), *Kaya senegalensis* (mohogani) and honey, according to FAO, (2000), traded NWFPs contributes to the fulfillment of daily needs and provision of employment as well as income.

Table (2): Uses of NWFPs by Household in the study area

Answers	Frequency	Percentage
Used	51	57
Not used	39	43
Total	90	100

Source: Field Survey, 2016

Df = 1, sig = not significant, chi-square = 1.600

Ns= not significant (p<0.05), *= significant, **= high significant, ***= very high significant.

According to the result in table (2) which showed that there were no significant differences at (p<0.05) among the respondents. The result indicated that 57% of the respondents used some products for preparing the handicrafts, such as: fencing, chairs, Beds, Sticks, Ornaments, sebha, oils, honey in fruits of *Ziziphusspina-christii* (Nabag), and different tradition foods. While about 43% of the households in the study area were not used the Non-wood forest products as a raw martial in other simple or tradition processing like handicrafts.

Table (3): Categories of collectors of NWFP in the study area

Collectors	Frequency	Percentage
Men	22	24
Women	53	59
Children	15	17
Total	90	100

Source: Field

Survey,

2016DF = 2, sig = ***, chi-square = 27.267

Ns= not significant, *= significant, **= high significant, ***= very high significant.

The result in table (3) showed that there were very high significant differences among respondents investigated at (p<.000). 59% of the household were women, followed by 24% of them were men, and while 17% of the respondents were children. This means that women play a vital role in stating the essential needs for household's food beside men. As stated by FAO (2008), women from poor households are generally those who rely more on NWFPs for household use and income.

Table (4): Ways of NWFPs collection by Respondents in the area

Ways of collections	Frequency	Percentage
From the ground	61	68
From the trees	29	32
Total	90	100

Source: Field Survey, 2016DF = 2, sig = ***, chi-square = 56.867

Ns = not significant (p<0.05), *= significant, **= high significant, ***= very high significant.

According to the data in table (4) there were very high significant differences at (p<.000) about 68% of the respondents said that the easy methods for NWFPs collecting is from the ground, followed by 32% of them collecting from the tree. The reason behind that majorities of respondents were collected the non-wood forest products from the ground, these because they were used the traditional tools like (Konjara, stones, and shake), and climbing trees for collection, beside the characteristic of some trees that lead them to use these methods.

Table (5): The purpose of NWFPs collection by households

Purposes	Frequency	Percentage
Only household use	20	22
For selling	70	78
Total	90	100

Source: Field

Survey, 2016DF =

1, sig = ***, chi-square = 27.778

Ns= not significant (p<0.05), *=significant, **= high significant, ***= very high significant.

The result in table (5) shows that there were very high significant differences at (p<.000) among the respondents. About 78% of the households were mainly collected the non-wood forest products for selling, while 22% of them were consumption the NWFPs at their home. This was according to (FAO, 1995) which stated that several millions of people all over the world depend on NWFPs for meeting their subsistence consumption, primary health and income needs.

Table (6): Types of Market for selling the Non Wood Forest Products

Types	Frequency	Percentage
Village market	78	87
Town market	12	13
Regional market	0	0
Total	90	100

***, chi-square =

69.44

DF= 1, sig =

Ns = not significant (p<0.05), *= significant, ***= high significant, ****= very high significant.

The result in table (6) showed that there were very high significant differences at (p<.000). About 87% of the respondent mentioned that they were sold major products in village markets because there were high cost of transportation, followed by 13% of the respondents sell products of (*Ardeib, Honey, Gum Arabic, Nabag, and Hajleeg*) in town markets such as Zalingei and Nyala market and none of them sold their NWFPs in regional markets. This explained that the majority of the respondents would sell their NWFPs in the village markets to avoid a high cost of transportation and tax by FNC and locality.

Table (7): Contribution of NWFPs in food security and income generation of rural community

food security & income generation	Frequency	Percentage
Contributed	79	88
Not Contribute	11	12
Total	90	100

Source: Field Survey, 2016 Df= 1, sig = ***, chi-square = 51.3

Ns= not significant (p<0.05), *= significant, **=high significant, ***= very high significant.

The result in table (7) indicated that there were very high significant differences among the respondents at (p<.000). About contribution of NWFPs in used of these products in food security, 88% of the respondents stated that NWFPs have significant role at household's food security; this due to increases in their awareness about the direct consumption and nutrition value of NWFPs resources which include different types of products such as: *Lalob, Nabag, Gudeim, Aradeib, Hemeid, Jemeiz and Gembeel*, while 12% of them said that was no clear role in used of NWFPs in food security. As stated by Olawoye (1996) NWFPs make significant direct contributions to food security of therural population by providing a wide range of food which provides essential nutrients especially at times when other food sources are not available.

Table (8): Contribution of NWFP in livestock feeding

livestock feeding	Frequency	Percentage
Contribute	84	93
Not contribute	6	7
Total	90	100

Source: Field Survey, 2016 DF=1 , sig = ***, chi-square = 67.600

Ns= not significant (p<0.05), *= significant, **= high significant, ***= very high significant.

According to the result in table (8) which showed that there were very high significant differences at (p<.000), among the respondents about contribution of NWFPs in produce fodder for feeding livestock. 93% of the households mentioned that NWFPs contribute in feeding their livestock in study area, through many types of trees such as: *Haraz, Nabag, Hajleeg, Arad, Hemeid, Gemeiz and Garad*, while only 7% of them said that there were no clear role for NWFPs in providing fodder for livestock. (Kamwend, 1999), stated that fodder from some trees and shrubs are particularly important during dry seasons when availability of grasses is markedly reduced. Feeding livestock inside forest therefore takes place during this season when resources within public land have been exhausted.

IV. Conclusion

The non-wood forest products were constituted as the source of indirect benefits such as building materials, fodder for animals, and also use the NWFPs in handcrafts for increase the income, and most of respondents were depend on the NWFPs as a source of income after the season of agricultural crops in the area.

The study found that the collection was done by all house members and 59% of women were main producers and collectors for NWFPs in the study area.

V. Recommendations

- Strengthening the role of forest extension and participation of communities' leaders in protection of NWFP recourses through introduce of Gas cylinder, beside these conducted training and capacity building in seeds sowing and planting of seedlings of trees to sustain the production of NWFPs.
- Establishment of clear marketing channels for NWFP product will assess in increase the income of households in the study area.
- Empowerment of women in study area about production and marketing of NWFPs through capacity building and training.

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References

- [1]. Ayeni, J., Sunderland, T.S. and Besong(2003). Distribution, utilization and sustainability of Non-timber forest products from Takamanda forestry Reserve. Cameroon Smithsonian institute/ MAB Biodiversity program series 8, Smithsonian, Washington D.C.
- [2]. FAO,(2008), Development of National level criteria and indicators for the sustainable management of dry forest in Asia: workshop Report. FAO regional office for Asia and the pacific, Bangkok.
- [3]. FAO, (1992). Food and agriculture organization of united Nations- forest History society. Durham NC.
- [4]. FAO, (1991), food and agriculture organization of united Nations Non-wood forest products: The way ahead (FAO forestry paper 48). Rome: FAO.
- [5]. FAO, (1995). Food and agriculture organization of united Nations Non-wood forest products-3, report of the international expert consultation on WFPs, Yogyakarta, Indonesia ; 10-17-18-19-22-40.
- [6]. FAO,(2008). Food Non-wood forest products, Rome, Italy.
- [7]. FM, (2011), forest management. NWFPs management and sustained livelihood, Bhopal- India.
- [8]. FNC, (2016), Reports of forest National Corporation-Central Darfur state.
- [9]. Kamwenda, G.J.(1999). Analysis of rigitiri, as traditional silvopastoral system among the agropastoralists of meantu, shingyanga, Tanzania. M.S.c.dissertation. sokoine university of Agriculture, Morogoro, Tanzania.
- [10]. Olawoye, J.E.(1996):sociological issue for sustainable forest Management. Ghana journal of forestry. Special edition. 18-33.vol.3.
- [11]. Norwegian church aid, (2017). Central Darfur office- Zallingi- Assessment of Natural Resources in Wadisaleh locality .
- [12]. Townson, I.M.1995 b. incomes from Non-timber forest products: patterns of enterprise activity in the forest zone of southern Ghana. Summary report. Oxford. 40pp.
- [13]. www.darfurcenter.gov.sd/index.php/about-us. Html

