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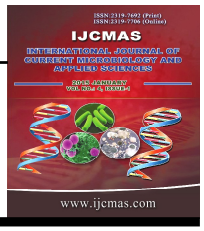

Original Research Article

The Role of Extension on Environmental awareness in Internally Displaced persons camps in Ardamata, West Darfur State

Mohamed Othman Abdalla bakar[1], Musaab Abdalla Ali[2] and Ismail Mohamed Fangama[3*]

[1]Forest National Corporation, Aligning, West Darfur State, Sudan
[2]Department of Forest Community, College of Forestry and Range Science, Sudan University of Science and Technology (SUST), Sudan
[3]Departments of Botany & Environment, College of Forestry and Range Science, Sudan University of Science and Technology (SUST), Sudan
**Corresponding author*

A B S T R A C T

Internally displaced persons (IDPs) in Ardamata camp have affected the forests in the area, because they depend on the forest products to satisfy their demands from the firewood, building materials, charcoal, fruit and fodder. The objectives of the study are to study the social and economic features of IDPs in the area, and to what extent people can benefit from the extension programmes in raising environmental awareness. Also to identify methods, approaches and tools used for executing environmental education programmes. Variety of methods has been used for collecting research data through various stages of the research. These methods represent the primary sources of data: (questionnaires, observation, open interviews).The sample size has been determined based on the number of families, there are (800) families, the sample size is about (80) a person, each person represents a family. A scale was designed for measuring data about persons concerning an idea or ideas that are included in the extension awareness programme, these scales contain different features of ideas of the research topic in various levels of knowledge. Levels of knowledge have been provided to individuals according to their knowledge to each item in form of questions. For data analysis and extraction of research findings, the descriptive statistical method has been used as a tool for data analysis. Frequencies and simple percentages were used by adopting Statistical Package for Social Sciences (SPSS). The results show that, the executed extension programmes included environmental awareness, production and distribution of seedlings, trees planting, and training of IDPs. The use of improved stoves has produced positive environmental effects in the area. It is worth noting that the people in charge of executing extension programmes often depend on lecturing and broadcasting in executing extension programmes in addition to practical demonstration but they rarely used the rest of the extension strategies. The researchers believed that the most successful strategies of extension are: radio, direct lectures using blackboard, drama if available in addition to practical demonstration.

Keywords

Environment, extension, forest, participant and programme

Introduction

The environmental awareness is vitally important at all levels. Despite the fact that this is clear to all the officials working in the field of environment. This has not been the case with the majority of the people in the community. Therefore, it is vitally important

to educate them (Mansour, 2013). In the last recent years, there has been a growing concern among scientists and researchers on the study of environmental problems, and how to find solutions to them. As such a number of conferences and forums have been held in different parts of the world, a new field of specializations have created in the field of environment, UN has placed much attention to the environmental studies, its problems, this has been followed by setting up of United Nations Environmental Programmes (UNDP) (Azzeldin *et al.*, 1994).The Forest National Corporation (FNC) in Western Darfur State in (2005-2014) has executed an extension programme in the field of seedlings production and distribution, training courses, extension sessions in the area of environmental awareness, Roads' tree planting, tree planting of camp site, dissemination of extension service through radio etc, and in all parts of the state. However, the presence of IDPs camps in the state have impact on the natural resources particularly the forest resource, this is caused by the community high demand on this resource (i.e. forest resource) to meet their high demand on (wood, charcoal), building materials, harvesting of crops etc. Thus to address the dreadful economic conditions that can be attributed to the conflict extension unit and Western Durfur State Forest (2013). Darfur conflict is an internal conflict in Sudan. Darfur State has witnessed a lot of changes and interventions. These changes have impact on the renewable natural resources such as forests, and ranges, this in turn has led to environmental deterioration in the area. Abalatif (1993) reported that, the forest acts as the soil stabilizer, protects the environment, shelter belts, regulates water cycle and minimizes the temperature. Environmental deterioration means that the poor sector of the community will be at risk, likewise, the resources that they depend on them economically will be at risk State, (Assam, 2009). Alawia (2005) has stated that the extension units are important for conducting any extension work and it has played a significant role in raising environmental awareness of the people.

Research problems

The refugees depend entirely on the forest resources; this has led to destruction of huge forest lands including reserved forests that are close to the towns, such as Forest belt of Geneina, Sesi forest. However, governmental and non-government efforts have been exerted to rise environmental awareness of the local community members through extension programmes on Forests and environment. And this has prompted me to pick up the research topic that investigates the role of extension in rising environmental awareness in the study area.

This study aim at investigating the following:

- The social and economic features of refugees in the area.
- To what extent people can benefit from the extension programmes in rising environmental awareness.
- To identify methods, approaches and tools used for executing environmental education programmes.

Materials and Methods

The social survey method has been used for collecting data about the role being played by forest extension in rising environmental awareness in the study area then extracting results that help in solving the problems that encounter the extension work, then executing the extension programmes. The deliberately chosen sample has been used for selecting a state, simply because the

population (people) depends totally on the forest resources. As a result of this, governmental and popular efforts have been exerted to raise environmental awareness through environmental and forest extension programmes. Then Ardamata refugees' camp has been chosen randomly. Variety of methods has been used for collecting research data through various stages of the research. These methods represent the primary sources of data: (a questionnaire, observation, opens interviews).The sample size has been determined based on the number of families, there are (800) families, the sample size is about (80) person, each person represents a family. A scale was designed for measuring data about persons concerning an idea or ideas that are included in the extension awareness programme, these scales contain different features of ideas of the research topic in various levels of knowledge. Levels of knowledge have been provided to individuals according to their knowledge to each item in form of questions. This has then led to formation/ creation of an indicator in an individual mind which reflects/shows the level of his/her information as far as the environment is concerned, in order to measure the level of environmental awareness, questions were directed to the study population to highlight the level of environmental knowledge, their opinions with regards to the extension programmes that have been provided to them to rise their environmental awareness needed for protection of environment, what are the environmental benefits drawn from the forest close to them, they did by participate in evaluation of extension programmes and what was the type of evaluation done by them? For data analysis and extraction of research findings, the descriptive statistic has been used as a tool for data analysis. Frequencies and simple percentages were used by adopting Statistical Package for Social Sciences (SPSS).

Result and Discussion

The study has revealed that the majority of people work in agriculture as their main occupation but in recent years and due to the problems that prevail in the area, the local population has shifted to other occupations or jobs so as to earn their living. Previously these refugees left their places of origin and they cultivated their crops in vast areas but now they live in refugees' camps and they do not practice agriculture as it used to be, this due to lack of vast agricultural lands which belong to them, this in turn has forced to shift to or rather take up new jobs. Thus, we have realized that this group of people is badly needed for extension programmes. Through observation it is clear that they keenly accepted the idea of the forest extension programme and were ready to preserve the environment. The researchers believe that the extension programme which was carried out the area has been widely accepted by the local community.

Table (1) shows that high percentage of participants benefited from extension programme, the benefit ranges between full benefit with percentage of 41.2% to partial benefit which accounts for 43.8% while 85% of the participants believe that there is benefit from extension programmes that have been carried out in the area where as 15% of respondents believe that there is benefit from the extension programmes. We have noticed that the majority of the community members benefited from the extension programmes that were carried out in the area and there is high significant difference with regard to benefit under moral level ($P<0.001$) that is, much of the benefit is either fully or partially with more or less the same percentages as reported by

the research participants. But, the small category that stated that there was little benefit gained from extension programmes may have reasons that made to believe in this respect. Moreover, the benefits from these programmes can be represented by: setting up of people's forests – setting up seedlings & nurseries, manufacturing of improved stoves – distribution of seedlings – trees' planting. The researchers believe that there is benefit gained from extension programmes executed in the area, this has been proved by the fact that some beneficiaries were producing seedlings and started to market them, in addition to planting trees around their farms to act as a fence, as well as planting trees within and without their houses.

Table 2 revealed that 38.8% of the participants believed that the level of participation in keeping environment clean is low (i.e. poor). However, there are other levels of participation that range between excellent, very good and good and this represents the majority of the research respondents, and there are no statistically significant differences ($P<0.05$), the views of participants with regard to good disposed of wastes, it is found that only 15% of the study population believed that the level of wastes' disposal was very low, while the majority believed that getting up of wastes was excellent, very good and good with close percentages respectively but there are also significant differences under level of confidence ($P<0.01$). This indicates that the majority of participants believed that the level of participation of high given the different levels that range in order from excellent, very good and good while we found that only 15% believed that the level of participation was poor and there are significant differences under level of confidence ($P<0.001$), this indicates that the majority of the study population participated in tree-planting, it was found that the participation of the community in awareness campaign was poor which accounts for 53.8%, but the rest of the community position ranges between excellent, very good and good and there are high significant differences under level of confidence ($P<0.01$). Also 91.7% of the study population believed that there is rational use of energy at different levels; this indicates that community used the energy rationally in the area. As revealed in the above table, the community enjoys high level of environmental awareness and the index of environmental awareness has pointed out this. Therefore, the researchers believed that this community is environmentally continuous and this has been verified and observed in the area.

Table 3 has revealed that 88.8% of the participants stated that the forest extension played an important role in environmental protection while 11.2% mentioned that there was no role being played by the forest extension in environmental protection. It is observed that the majority of the research participants believed that the forest extension played a significant role in the protection of environment in the area despite a small percentage of study population did not see any role being played by forest extension in favour of environmental protection. Through observation of the area, it has been found out that some individuals within the population study have changed attitudes positively towards environment by adopting tools which are less damaging to the environment such as the improve stove instead of "Ladaia", carrying out tree-planting in and outside the house, producing seedlings for sale so as to be planted later, planting trees around the farm so as to act as a fence, rationalizing the use of power, (i.e. charcoal, wood). Many projects have accomplished in Sudan with the aim of rising the environmental awareness of the people such projects are: (Extension and

Tree-Planting Village Project). This project was implemented by a UK organization in Nile River State in Shendi area; it has played a significant role in rising environmental awareness among women and activating her role in the community and highlighting the significance of women's role in participation (Alwia, 2005). The researchers believe that the forest extension has played a great role in environmental protection in the area; this is attributable to the extension programmes that have executed which had boosted environmental awareness of the vast majority of population in the area.

Table (4) showed that 93.8% of the respondents encouraged intensification of extension programmes while 6.2% of them do not encourage intensification of extension programmes. It is noticed that a few number of the respondents did not encourage intensification of extension programmes in the study area simply because such programmes were not available, this can be attributed to the fact that this category has not been a part of extension programme that has been executed in the area, while the vast majority of the study population encouraged an intensification of extension programmes, this indicated that this category of the participants have benefited from the extension programmes that have been executed in the study area which in turn have boosted their environmental awareness. Thus, the researchers believed that this community should be encouraged to carry out further extension programmes in the area particularly after having attended the extension training course on improved stove, production of seedlings, tree planting. All these programmes have encouraged them to intensify extension programmes.

Environmentally, it is known that forests have direct impact on the protection and preservation of environment. Trees act as wind break, it stabilizes soil, it regulates hydrocycle that determines the level of rains, it also regulates the level of oxygen and carbon dioxide in the atmosphere, and it reduces or rather modifies the temperature and humidity. It has been verified that the area protected by wind break or the forests in the opposite side is about (10-20) times the height of trees as said by Abdul Latif (1993).

Table 5 has shown that the majority of respondents confirmed that the forests that are found near them have environmental benefits. This percentage is distributed to the benefits of trees that are represented by (modifying the temperature by 60.0%, reducing pollution 5.7%, absorbing poisons 6.3%, increasing soil fertility 8.7%, protecting soil 5.0%). 87.5% of the participants believed that forests have environmental benefits while 12% of them reported that the forest that is close to them does not offer any environmental benefits. It is worth noting that the majority of the population study believed that these forests are closed to them have environmental benefits such as they act as in modifying temperature, reducing pollution, absorbing poisons and smokes that originated from red bricks kilns that are scattered around the area, increasing soil fertility, protecting soil from erosion. Through observation, it is found that the study population has benefited greatly from the nearby forests, it has been observed that people spent much of their time under the shade of the trees and all occasions are organized within the forests, it is really a social benefit, it has been noticed that the wooded area is characterized by pure, nice, quiet, evergreen and magnificent environment. The researchers believe that these wooded lands have provided environmental and social benefits to the local population and these

benefits will be incentive to the community to preserve the forests in general.

Table 6 revealed that 5.0% of the research respondents reported that the broadcasting programmes on radio is the most successful method while 1.2% reported that they have not heard about radio programme, 48.7% stated that lectures that were delivered through blackboard is the most successful method in carrying out extension programmes, while 51.35 did not consider blackboard as the most successful method for executing extension programmes, 5.0% reported that TV is the most successful strategy for extension. However, the majority of the study population did regard TV as the most successful strategy for executing extension programmes and this is similar to what have been stated by participants with regard to the use of audio recording as a means for executing extension programmes, while 1.2% of the participants believed that the practical illustration is the most successful strategy of extension while 98.8% did not see any benefit in the use practical demonstration as the most successful strategy for executing extension programmes, while 100% of the participants regarded that fixed photos did not represent the most successful strategy for extension programmes, while radio and extension lectures represent the most successful strategy for extension among the vast majority of the study population in addition to the practical demonstration. But those who reported that these strategies are not the most successful in executing extension programmes believed that had not been familiar with these strategies at all.

It is worth noting that the people in charge of executing extension programmes often depend on lecturing and broadcasting in executing extension programmes in addition to practical demonstration but they rarely used the rest of the extension strategies. The researchers believed that the most successful strategies of extension are: radio, direct lectures using blackboard, drama if available in addition to practical demonstration.

The vast majority of the study population comprises of male participants, agriculture is the main occupation, and they are highly educated. This study population has benefited from the extension programmes executed in the area, thus, the level of environmental has risen among them. This has consequently led to the protection of environment in the study area; which in turn encouraged the community to call for intensification of extension programmes through forest and environmental extension by using radio, direct lectures with the aid of blackboard as well as practical demonstration.

Recommendations

1)The government should introduce alternative energy that should be environmentally friendly with reasonable prices or encourage in this field with reduction of taxes imposed on investors so that prices will be affordable to all and this in turn helps in preservation of forest and environment as a whole.

2) Benefiting from foreign and national organizations working in the area, so as to provide facilities needed for training of trainers at home or abroad in order to protect the environment in the area.

3) Raising environmental awareness of decision-makers in the area through organizing forms on environment by extending invitations to them to participate in such forums.

4) Introducing up-to-date methods of forest extension and environmental awareness so as to be scientific, easy and understandable to the beneficiaries.

Table.1 Potential benefits of extension programmes on environmental awareness

Benefits	Frequencies	Percentage
Whole	33	41.2
Partial	35	43.8
Does not exist	12	15.0
Total	80	100.0

$X^2 = 15.226$ Level of confidence ($P<0.001$)

Table.2 Measuring Participants' Environmental Awareness

Scale	Participating in making environment clean		Disposal of wastes		Participating in tree planting		Participating in Awareness Campaigns		Rationalizing the use of Resources	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Excellent	18	22.5	26	32.5	35	43.7	8	10	23	28.5
V.Good	14	17.5	29	36.2	23	28.8	11	13.7	20	25
Good	17	21.2	13	16.3	12	15	18	22.5	30	37.5
Poor	31	38.8	12	15	10	12.5	43	53.8	7	8.7
Total	80	100	80	100	80	100	80	100	80	100

Table.3 The Role of Forest Extension in Environmental Protection

Extension protects nvironment	Frequency	Percentage
Yes	71	88.8
No	9	11.2
Total	80	100.0

Table.4 Intensification of Extension in the Area

Intensification of Extension	Frequency	Percentage
Yes	75	93.8
No	5	6.2
Total	80	100.0

Table.5 Main Benefits of Forests

Benefits	Frequency	Percentage
Modifying temperature	48	60.0
Reducing pollution	6	7.5
Absorbing poisons	5	6.3
Increasing soil fertility	7	8.7
Protecting soil from	4	5.0
Does not exist	10	12.5
Total	80	100.0

Table.6 Smart Methods for Executing Extension Programmes

Method	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Lectures using black board	39	48.7	41	51.3	80	100.0
TV	4	5.0	76	95.0	80	100.0
Radio	47	58.8	33	41.2	80	100.0
Posters	0	0.0	80	100.0	80	100.0
Practical demonstration	1	1.2	79	98.8	80	100.0
Fixed photos	0	0.0	80	100.0	80	100.0
Audio-recording (type recorders)	4	5.0	76	95.0	80	100.0

References

Abdullatif, I. M. (1993) Development in Sudan from Environmental Perspective.

Alawia, A. A. (2005) Master degree thesis entitled: the Impact of Extension Programme and Village Tree-Planting on reducing the effects of Desertification in Shandi area – College of Agriculture – University of Khartoum.

Assam, A. (2009) Darfur pain in the Heart of Arabian.

Azz Eldin, A. & Sadeq, A. T. (1994) Poisons of environment, Hazards of Air, Water and Food Pollution, College of Pharmacy Cairo University, College of Pharmacy, King Saud University.

Forestry National cooperation. (2013) Forests in west Darfur State, Extension Unit.