DEDICATION

I dedicated this work to my father, mother soul, to my wife Basamat, to my .daughters Ibtegah, Imtethal, Omnia, Asail, to my twins Mohammed and Ahmmed

ACKNOWLEDGEMENT

I am indebted to my main supervisor Prof. Ali Mohayad Bannaga, and the first cosupervisor Dr. Mahir Salih Suleiman and second co-supervisor Dr. Elshafa Ali .Margani for their guidance and constructive criticisms

My sincere thanks are extended to Edduweim Plan Sudan office specially the coordinator of the project Eltayb IzzEldain and the directors of the administrations of agricultural extension Abdalkariem Abdalla, forestry office Abdalaziz and his deputy Wad-Elsafori, natural range office Gasim Omer Elhaj and Ali Tayalla .specialist in plant protection for their invaluable assistance

My sincere thanks are extended to the tribes Omdas Abdallmagid, Gismalla, Elnour and Eltayb the omdas of Shewihat, Musalamia, Shanabla and Shigaigs tribes repectively for their facilities and responses to our questions, and thanks are extended to Plan Sudan Villages Committees and Villages Sheikhs for their strong assistances in villages to meet the participants. My thanks are extended also to people of Shigag Elgaalien, Goz Elahmer, Wad Jabor, Galaga, Elhalba, Abu-Sunut, Eltahra, WadMasri, Sangair and Shigaig Elkawahla for their patience in answering .our questions

I am indebted to my family for their personal sacrifice and encouragement .during the study

My everlasting prays go to Alla who without his will, this achievement could not .have been realized

ABSTRACT

Impact of Community Participation on Natural Resources :Forest and Range) Management)

A Case Study of White Nile State ED-Duweim Project

The study objective was to assess the contribution of people's participation in natural resources (forest and range) management in Ed-Duweim project unit (Plan .(Sudan) White Nile State (Sudan) between the years (1996-2003

The natural resources (forest and natural range) investigated were forest rehabilitation, natural range rehabilitation, natural forest protection, range land .protection

The research data was obtained by stratified random sampling with the size of 140 respondents from local people distributed in 10 villages located in the study area. Moreover the official interviews with Plan Sudan manager and other relative administrators were held. In addition to interviews with 4 Omdas, 10 villages Sheikhs and 10 persons in each village from Plan Sudan Villages Development Committees (VDCs). Descriptive analysis (frequency distribution and percentages), using the SPSS package. Chi-squire test were employed to analyze .the research data

:The main findings were

- Generally the participants show higher percentage in contribution in natural .resources management (forest and range) than non-participants
- The participation of people by efforts, always have very large percentages .compared to participation by money or ideas
- The perception of the people to trees and range plants shows high percentages for .people conception to trees and range plants
- The results of the people's participation in management of the forest and range activities show a higher percentage for collective work, but the people still need .more work in the field of the natural resource in the area
- The extent of the people's participation in the project programs showed a high involvement by the people in the situational analysis of the problems and requirements. The percentages then decreased during the statement of the problems, designing and implementation and ended by the decrease in percentage .during the monitoring and evaluation
- The main obstacles for the community participation in the project activities was poverty, followed by the people may have agricultural work timing conflicting

with the project activities, but the people have a good information about the fields .of the forest and range

The evaluation reported by Plan Sudan and other relative administrations, some - .time describes the participation as high in protecting their environment

Finally, the study presented recommendations pertinent to enhancement in assessment and development of the community participation in natural resources .management, particularly in the study area and Sudan in general

ملخص الدراسة

أثر مشاركة المجتمع في إدارة الموارد الطبيعية (الغابات والمراعي) دراسة حالة ولاية النيل الابيض مشروع الدويم

هدفت هذه الدراسة لاكتشاف اثرمشاركة المجتمع في إدارة الموارد الطبيعية (الغابات والمراعي) في وحدة مشروع الدويم (بلان سودان) النيل الأبيض (السودان) وذلك في الفترة ما بين 1996-2003

الموارد الطبيعية التي بحثت هي إعادة استزراع الغابات, إعادة استزراع المراعي الطبيعية, حماية الغابات الطبيعية, حماية أراضي المراعي.

البيانات لهذه الدراسة أخذت عن طريق العينة الطبقية العشوائية ل 140 شخص في المنطقة. وهؤلاء موزعين في 10 قري تقع داخل منطقة الدراسة. بالإضافة إلي المقابلات المكتبية مع بلان سودان والإدارات ذات الصلة, وأيضا تمت مقابلة 4 من العمد و 10من الشيوخ و 10 أشخاص لكل قرية يمثلون لجان التنمية التابعة لمنظمة بلان سودان, و استخدم طريقة التحليل المعلومات. الإحصائي المجتمعي (التوزيع التكراري والنسبة المئوية) و استخدام مربع كاي لتحليل المعلومات. أثبت الدراسة النتائج التالية:-

- عموما مساهمة المشاركين أعلي في إدارة الموارد الطبيعية (الغابات و المراعي) من الغير مشاركين.
 - المشاركة بالجهد في كثير من الأحيان اعلي من المشاركة بالمال والفكر.
 - تصورات السكان المحليين عن الأشجار و نباتات المراعي إيجابية.
- نتائج مشاركة السكان المحليين في إدارة الغابات والمراعي أثبتت نسبة عالية في النفير, ولكن لازال المحليين في حاجة لعمل الكثير في مجال الموارد الطبيعية في المنطقة.
- مشاركة المحليين كانت بنسبة عالية في تحليل موا قفهم و احتياجاتهم الآنية, و قلت أثناء تقرير الأهداف وتنفيذ البرامج و المتابعة والتقويم.
- الع قبة الرئيسية التي قللت من المشاركة المجتمعية هي الفقر و الانشغال بالعمل الزراعي, و لكن السكان المحليين لهم معلومات جيدة عن الغابات و المراعي.
- الت قويم بواسطة بلان سودان والإدارات ذات الصلة وصفت المشاركة بالايجابية في حماية البيئية.

و أخيرا خلصت الدراسة إلي بعض التوصيات التي يمكن أن تسهم في تـ قويم و تطوير تجربة المشاركة المجتمعية في إدارة الموارد الطبيعية في المنط قة بشكل خاص و في السودان عموما.

TABLE OF CONTENTS

	Dedication	I
	Acknowledgements	II
	Abstract	III
	Arabic Abstract	V
	Table of Contents	VI
	List of Tables	XI
	List of Abbreviations	XVI
	List of common names of trees and range plants	XVIII
	CHAPTER ONE	1
.1	Introduction	1
.1.1	Background	1
.1.2	Problem Statement	5
.1.3	The objectives of the study	6
.1.4	The Research Questions	6
.1.4.1	The main questions	6
.1.4.2	The specific Research Questions	7
.1.5	Definition of terms	8
.1.6	Organization of the Study	10

11	CHAPTER TWO	
11	Literature Review	.2
11	Agricultural Extension	.2.1
11	Extension's Philosophy	.2.2.1
11	The Basic Principles of Extension's Philosophy	.2.1.2
12	Four paradigms of agricultural extension	.2.1.3

13	Agricultural extension approaches	.2.1.4
16	Extension Programs Development	.2.1.5
17	Community Participation	.2.2
18	Importance of the Community Participation	.2.3
19	Community Organization	.2.4
22	Community education	.2.5
24	Community Development	.2.6
27	Dimensions of Participation	.2.7
27	Participants as informants	.2.7.1
28	Participants as interpreters	.2.7.2
29	Participants as planners	.2.7.3
31	Participants as implementers	.2.7.4
31	Participants as facilitators	.2.7.5
32	Participants as researchers	.2.7.6
32	Participants as recipients	.2.7.7
33	Capacity Building	.2.8
35	Current Situation of Natural Resources in Sudan	.2.9
38	Deterioration of Natural Resources in Sudan	2.10
39	Natural Resources Management	.2.11
41	(Natural Resources Management (global experience	.1.11.1
52	Management of Natural Resources in Sudan	.2.11.2
53	Forest Management	2.11.2.1
55	Management of Range lands	.2.11.2.2
57	Major activities of Community Forest in Sudan	.2.12
59	Major strategic activities of range land in Sudan	.2.13
63	Constraints that affected the community participation	.2.14
64	The conceptual frame-work of the study	.2.15
66	CHAPTER THREE	
66	Research Methodology	.3
66	The Study Area	.3.1
66	location of the study	.3.1.1
66	Climate, Topography, Demography and Economic Activities	.3.1.2
66	Climate	.3.1.2.1
67	Topography	.3.1.2.2
67	Vegetation Cover	.3.1.2.3

68	Demography	.3.1.2.4
69	Economical activities	.3.1.2.5
70	Methodology	.3.2
70	Data Collection Methods	.3.2.1
70	Analytical Technique	.3.2.2
71	The sample size	.3.2.3
72	CHAPTER FOUR	
72	Results and discussion	.4
73	Descriptive Analysis	.4.1
78	Participation in project activities	.4.2
88	The perceptions of the respondents	.4.3
89	The participatory approaches	.4.4
91	The results of the respondents participation in the project	.4.5
95	The extent of the respondents participation in the project	.4.6
	programs	
97	The main obstacles for the community participation	.4.7
100	Chi-squire test	.4.8
107	The discussions with officials	.4.9
107	Plan Sudan	.4.9.1
109	The administration of agricultural extension, forest and	.4.9.2
	natural range	
112	The local leaders (Omda's, Sheikh's and Plan Sudan VDCs	.4.9.3
112	Omda's participation	4.9.3.1
114	Sheikhs and Plan Sudan VDCs	.4.9.3.2
116	Plan Sudan Children	.4.9.4
117	Some results and discussion	.4.10
128	CHAPTER FIVE	
128	Summary, Conclusion and Recommendations	.5
129	Summary of the Results	.5.1
129	Descriptive analysis for socio-economic characteristics of the	.5.1.1
_	respondents	
	1	

.5.1.2	Descriptive analysis for community participation in natural	130
.5.1.3	resources (forest and range) management activities Chi-squire test for community participation in natural	131
	resources (forest and range) management activities	
.5.2	Recommendations	132
	References	135
	:Appendices	147
	Appendix 1: Questionnaire- Respondents questions	147
	Appendix 2: Questionnaire- discussion with officials	152
	Appendix 3: Forestry Activities	158
	Appendix 4: Range and Pastures Activities	159
	Appendix 5: Agricultural Extension Activities	160

LIST OF TABLES

73	Distribution of respondents according to their sex	1
74	Distribution of the respondents according to their age	2
74	Distribution of the respondents according to their level of education	3
75	Distribution of the respondents according to farm size per Makhamas	4
76	Distribution of the respondents according to annual income	5
76	(agricultural products) Distribution of the respondents according to annual income	6
76	(animal products) Distribution of the respondents according to annual income	7

77	(forest products) Distribution of the respondents according to annual income	8
, ,	•	Ü
78	(trade) Distribution of the respondents according to their participation in	9
	extension session about natural resources management in (forestry and	
	range) activities	
79	Distribution of the respondents according to their participation in	10
	planting forest seedling	
79	Distribution of the respondents according to their participation in	11
	forest seed broadcasting	
79	Distribution of the respondents according to their participation in	12
	sand-dune fixation	
81	Distribution of the respondents according to their participation in	16
	range seed broadcasting	
81	Distribution of the respondents according to their participation in	17
	(control of desert creep (tumam plantation	
82	Distribution of the respondents according to their participation in	18
	rehabilitation of water reservoir	
84	Distribution of the respondents according to their participation in	22
	biomass energy	
84	Distribution of the respondents according to their participation in	23
0.		
84	natural forest conservation Distribution of the respondents according to their participation in stove	24
0-		4
85	possession Distribution of the respondents according to their participation in gas	25
05		20
85	cylinder possession Distribution of the respondents according to their participation in forest	26
03		20
O.C	guarding Distribution of the respondents asserting to their participation in fire	27
86	Distribution of the respondents according to their participation in fire-	27
0.0	line construction	200
86	Distribution of the respondents according to their participation in	28
	range-land fence construction	

88	Distribution of the respondents according to their allowance for trees	32
88	and range plant to be planted in their lands Distribution of the respondents according to their fear from authority to	33
88	take their lands when planted with trees Distribution of the respondents according to their lack of awareness	34
	about the benefit of the trees and range plants when grown adjacent to	
89	Distribution of the respondents according to their fear from	35
89	competition of the trees and range plant with their crops Distribution of the respondents according with their views about forest	36
	and range plants planning to be with full achievement to program	
90	needs Distribution of the respondents according to their views about forest	37
90	and range plants planning to be achieved with partial contribution Distribution of the respondents according to their views about forest	38
	and range plants planning to be achieved without contribution unless	
90	money paid Distribution of the respondents according to their views about forest	39
	and range plants planning to be achieved without contribution but with	
91	spiritual support Distribution of the respondents according to their views about the	40
92	(presence of the collective work (Nafir Distribution of the respondents according to their views about the ease	41
92	of the obtaining forest products Distribution of the respondents according to their views about the ease	42
93	of obtaining range products Distribution of the respondents according to their views about	43
93	increasing the crops production Distribution of the respondents according to their views about the	44
	project programs satisfaction to stop degradation of the forest and	
	range	

95	Distribution of the respondents according to their participation in the	45
95	situational analysis for determination of their needs and requirements Distribution of the respondents according to their participation in	46
95	designing the work plan to achieve the program objectives Distribution of the respondents according to their participation in	47
96	designing the work plan to achieve the program objectives Distribution of the respondents according to their participation in	48
97	monitoring and evaluation of achieved objectives Distribution of the respondents according to their participation	49
97	(constraints in the activities of the project (ignorance of the project Distribution of the respondents according to their participation	50
	constraints in the activities of the project (lack of information in fields	
97	Distribution of the respondents according to their participation	51
	constraints in the activities of the project (agricultural activities	
98	Distribution of the respondents according to their participation	52
98	(constraints in the activities of the project (poverty Distribution of the respondents according to their participation	53
	constraints in the activities of the project (absence from village, busy,	
100	$(\dots etc \\$ Chi-squire test for the respondents participation in forest rehabilitation	54
100	Chi-squire test for the respondents participation in range land	55
101	rehabilitation executed by the project Chi-squire test for the respondents participation in forest protection	56
101	Chi-squire test for the respondents participation in range land	57
102	protection executed by the project Chi-squire test for the respondents according to their perception to	58
	trees and range plants	

103	Chi-squire test for the respondents according to the participatory	59
104	approaches used to achieve the project programs Chi-squire test for the results of the respondents participation in the	60
105	management of the forest and range activities Chi-squire test for the extent of the respondents participation in the	61
106	projects programs planning Chi-squire test for the respondents opinions about the main obstacles	62
	for community participation in the project activities	

LIST OF ABBREVIATIONS

.ADSs Area Development Schemes

. Alfaza Calling for help from the people in cases i.e. fire and theft

.AOAD Arab Organization for Agricultural Development

.ARDA Arsaal Rural development Association

.CBOs Community Based Organizations

.CBR Country Baseline Report

.CBWM Community-based wild life management

.CDPs/ CDOs Community Development Plans/ Outlines

.CFM Collective Forest Management

.CMT Country Management Team

.CIDA Canadian International Development Agency

.CPME Corporate Planning, Monitoring and Evaluation

.CPO Country Program Outline

.CSP Country Strategic Plan

.DECARP Desert Encouragement Control and Rehabilitation Program

.ES Enrolment System

.FAO Food Agriculture Organization

.FNC Forest National Corporation

.FFS <u>Farmers Field Schools</u>

.GAAS Guizhou Academy of Agriculture Sciences

.GFMC Global Fire Monitoring Center

.GIS Geographic Information System

.GOs Governmental Organizations

.GNP Gross National Product

.HCENR Higher Council for Environment Natural Resources

.HUAF Hue University of Agriculture and Forestry

.Ibid The previous reference

.IDA International Development Association

.IDRC International Development Research Centre

. IFFM Integrated Forest Fire Management

.IPM Integrated Pest Management

.ISDR International Strategy for Disaster Reduction

.LUN Local Users Network

.Makhamas Sudanese measure for the areas=1.4 feddan. 1feddan = 0.42 hectares

.MC Meteorological Corporation

.Nafir A collection of a certain people to a achieve a certain job i.e. building

.NCSA National Capacity Self-Assessment Project

.NDDCU National Drought and Desertification Control Unit

.NGOs Non-Governmental Organizations

.Omdas Local leaders with great responsibilities in leading their tribes

.PTD Participatory technology development

.PU Project Unit

.Shiekhs Local leaders for certain villages under the control of Omdas

.SOS Saves our souls

.SNAP Sudan National Action Program

.SPSS Statistical Package for Social Science

. UK United Kingdom

.UNCCD United Nation Convention to Combat Desertification

.UNSO United Nation Sudano-Sahelian Office

.USA United State of America

.VCDCs Village Council Development Committees

.VDCs Village Development Committees

.WSSD Word Summit for Sustainable Development

LIST OF COMMON NAMES AND TREES AND RANGE PLANTS

Acacia mellifera Kitir(wait-a-bit- tree) Tumam(range plant) Panoicum turgidum Leptadenia pyrotechnica Marakh (range plant) Sunt (forest tree) Acacia nilotica Seyal (forest tree) Acacia seyal Elbgail(range plant) Blepharis linarfolia Sidir (forest tree) Ziziphus spina-christi Godaim (forest tree) Grewia tenax