

# Household Participation on Exclosure Management : Its Implication for the Exclosures in Ethiopia

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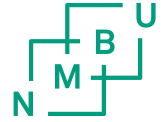
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24.05.2016

# Introduction

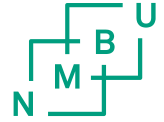
- Local community participation is important for the successful management of natural resources
- The local community participate on:
  - Soil and water conservation such as water harvesting
  - Planting of seedlings, digging pits
  - Contribute in cash or in kind payment for guards

# Statement of the problem



- Identifying factors affecting participation of local community on the management of exclosures has paramount importance for devising alternative management options for the exclosures.
- The factors influencing participation of households on the management of exclosures have not been critically studied in the study area.
- Therefore, the study is designed to identify factors that influence participation decision of the households in the study area.

# Statement of the problem

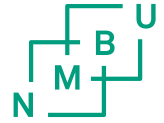


- Mekuria *et al.* (2011), (Mekuria *et al.*, 2007), Shylendra (2002), (Gebremedhin *et al.*, 2003), Dolisca *et al.* (2006), (Atmiş *et al.*, 2007), these are authors who did study on factors affecting participation on forest management

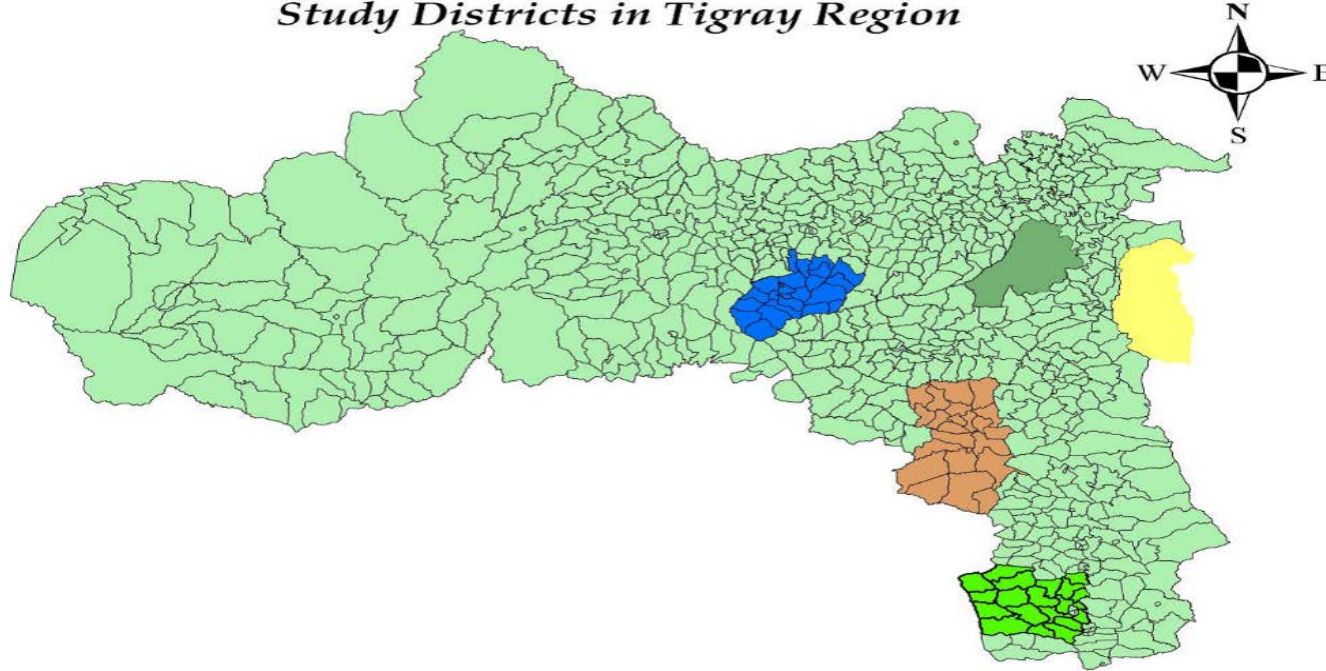
## Objective

To identify factors influencing household participation on the management of exclosures

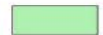
# Methodology



## *Study Districts in Tigray Region*



### Legend



### Study Districts



Ofla



Naeder Adet



Saharti Samre



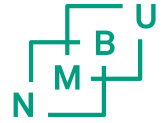
Hawzen



Atsbi Wenberta

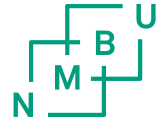
0 22,000 44,000 88,000 132,000 176,000 Meters





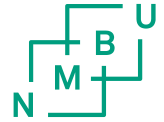
# Sampling Method

- Nine exclosures, three from each agroecology were selected for this study.
- The study has employed 450 sampled households selected proportion to sample size from the nine exclosures.
- However, only 446 households with complete information were used for data analysis.



## Method of Analysis

- Chi-square and t test will be used to assess differences in the categorical and continuous measures respectively
- The dependent variable is participation decision and it is considered as dummy
- probit model is easy for interpretation since the marginal effects are expressed in probabilities.



## Method of Analysis

- Hence, the probit model will be used to analyze the factors influencing households' participation decision in the management of enclosures



## Result and Discussion

- From the total sampled households 446, 85(19.6%) replied that they did not participating in the management of exclosures while the majority of the sampled households 361(80.4%) replied that that had participated in the management of exclosures in the last 3 years.
- From 446 sampled households 107(23.99%) are female headed households while the remaining 339(76.01%) are male headed households.
- All the sampled households revealed that they had access to credit from either from governmental organizations or from individuals.

# Result and Discussion

## Mean of continuous variables across the exclosures

Variable	Exclosures								
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Agehh	57	57	55	45	46	48	43	55	50
TLU	3.267	4.630	3.414	3.532	3.019	3.295	4.643	3.796	3.797
Totalland(ha)	.52	.70	.51	1.71	.85	1.29	.79	.72	.86

1=Zibanbrile 2=Abeldega 3=Gumbeho 4=Tsaedaemni 5=Maytekli 6=Tensuka 7=Dip 8=Tumbokle and seka 9=Adigedaw

# Result and Discussion

## Analysis of variance across the exclosures across the exclosures

Variable	F value	P value
Agehh	5.278	0.000***
TLU	1.535	0.143
Average number of extension visit	0.788	0.614
Number of houses	3.887	0.000***
Total land (ha)	29.325	0.000***

# Result and Discussion

## Chi-squared test of significance between two categorical variables

Variable		Nonparticipants	Participants	Chi-square value
Did you take credit	No	64	190	14.413***
	Yes	174	171	
Participation on agricultural training	No	55	115	31.475***
	Yes	30	246	
Do you get extension service	No	55	166	9.647***
	Yes	30	195	
Radio ownership	No	69	251	4.466**
	Yes	16	109	

The Pearson chi-square test revealed that there is statistically significant difference on the participation of exclosures between those who took credit or who did not. From the descriptive result, most of those who took credit are participation on the management of exclosures. *Hence, there is a need to give due attention to engage the rural household be beneficiary of different credit arrangements.*

# Result and Discussion

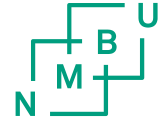
## Result of Independent sample t test of continuous variable on categorical variable

Variable	Participants	Nonparticipants	T value
TLU ownership	3.70	3.02	2.226**
Total land holding (ha)	1.076	0.714	-5.673***
Age of the household head	48.43	56.36	-4.560***

\*\*\*, \*\* and\* indicate statistically significant at 1, 5 and 10% respectively

The independent samples t test revealed that ownership of livestock in Tropical Livestock Unit (TLU) has brought about statistically significant difference on the participation of exclosures. From the descriptive statistics, those who are participating have larger TLU. *Hence, policies aiming developing the livestock ownership of the rural community could enhance the households' participation on the exclosures.*

# Probit model on participation on the management of exclosures



Variable	Coefficients	P Value	Marginal effect
Constant	0.710	0.043**	
Gender	0.276	0.144	0.062
Agehh	-0.023	0.000***	-0.004
Total land holding (ha)	0.762	0.000***	0.158
Number of house owned	-0.151	0.093	-0.031
Getcredit	0.175	0.312	0.036
Benefitobtained	0.264	0.134	0.058
TLUowned	-0.007	0.860	-0.001
Radowned	0.154	0.436	0.031
Mobowned	-0.274	0.133	-0.055
Extension service	0.593	0.002***	0.124
Participation on forest training	-0.506	0.055	-0.123
Part. Agricultural Training	0.858	0.000***	0.199

\*\*\*, \*\* indicate statistically significant at 1, 5 and 10% respectively

## Result and Discussion

- The result revealed that the participation on agricultural training influences participation on the management of exclosures positively and statistically significant at less than 1 percent significance level.

## Result and Discussion

- The marginal effect explains that if the farm household is participating on the agricultural training then the probability of participation on the management of exclosures increases by 19.9 percent.



## Result and Discussion

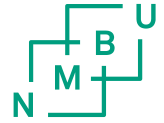
- This might be because of the fact that those who are getting agricultural training are developing the sense of ownership on the exclosure that in turn motivate them to participate on the management of exclosures.

## Result and Discussion

- Based on the probit model result, **age of the household head** influences participation on the management on exclosures negatively and statistically significant at less than 1 percent significance level.
- The marginal effect also confirmed that, if the age of the household increased by one year then the probability to participate decreases by 0.4 percent.

## Result and Discussion

- This could be because of the fact that the older households have less education level that leads encourages them to participate on the management of exclosures.



## Result and Discussion

- **Total land holding** influences the participation on the management of exclosures positively and statistically significant at less than 1 percent significance level.
- The marginal effect also confirmed that, if the land holding increases by 1 hectare then the probability of participation increases by 15.8 percent.

## Result and Discussion

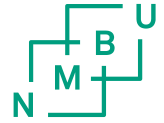
- This could be because of the reason that those who own large cultivated land can get good produce and they can get high crop income because of good rainfall availability and reduced erosion.
- Thus, they will tend to participate on the management of exclosures with the expectation of getting good rainfall and reducing flood problem.

## Result and Discussion

- **Agricultural extension service** provided by the natural resource management development influences participation on the exclosures positively and statistically significant at less than 1 percent significance level.
- The marginal effect result revealed that, if the household gets agricultural extension service then the probability of participation on the management of exclosures increases by 12.4 percent.

## Result and Discussion

- This could be because of the fact that those who are getting agricultural extension services have good understanding on the importance of participation on the management of exclosures because of the lessons they got from the development agent.

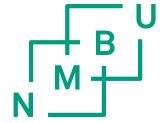


## Recommendation

- Diffusion of the agricultural training to those who did not get trained could encourage them to develop interest in the management of exclosures. Therefore, diffusion of agricultural training should be considered as one element to enhance participation.
- Therefore, enhancing the awareness of old aged households to participation in exclosure management should be considered as an important issue.



# Recommendation



- Farm households who own smaller cultivated land should develop the kind of thinking that the owners of large land holding and then encourage them to participate on the management of exclosures.
- Therefore, there is a need to expand the coverage of the agricultural extension services to those who are not getting the service so that they will have good understanding and participate on the management of exclosures.