

# Towards an Understanding of the Implications of Forest Management Reforms in East Africa

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# Setting the stage

- Evaluation of forest decentralization elsewhere has posted mixed results with regard to their influence on household decisions.
- Most studies have looked at benefits and costs associated with decentralization, how it interacts with other governance structures, how it affects forest conditions and livelihood outcomes.

## **But**

- The issue of behavioural changes resulting from decentralization among forest users has been largely ignored
- More so, there is limited understanding of how this principle filters down to local forest users.
- We attempt to address this gap by analyzing household farm forestry decisions within the larger context of national decentralization policies.

# Reactions to PFM

- General result is that there is a degree of restricted access to forest and forest products.
- Given the heavy reliance on forest and forest products, what do the villagers do in the presence of restrictions?
- We observe **five** options:
  - a)-Collect fewer or less NTFPs
  - b)-Switch to less protected forests
  - c)-Rely on the market to provide these products
  - d)-Illegally continue to invade the forest
  - e)-Plant/establish own forest plantations on their land.

# Reactions cont'd

## **Forest plantations on own land**

- -Type of trees, number of trees, participation in CFAs etc.
- We observe that farmers have adopted to planting trees on their own farms in the last 5 to 10 years.
- **Cursory observations suggest that in:**
- Tanzania, the process has been on-going over the last 10 years.
- Kenya, the process has been on for the last 4 years which is in line with the introduction of the Forest Act implemented in 2007.
- Ethiopia, restrictions on CBFM encourage own plantations (Mekonnen and Bluffstone 2009).
- **BUT** it is not clear or obvious whether own tree planting is due to PFM ; degradation of forests or BOTH.

# Areas of Coverage

- The EfD initiative has supported a couple of studies to understand the situation:
- Kenya: Kakamega forest, Mt. Kenya forest region- (cross-sectional data)
- Tanzania: Tanga and Morogoro regions-(cross-sectional data)
- Ethiopia: Ahmara region-panel data but more panels required

# Approach

## **TANZANIA- Tanga & Morogoro regions**

- Data from over 1000 households on: length of tree growing, tree species, purpose of trees, nature of PFM, access restrictions imposed by PFM, what factors explain recent tree planting initiatives, Individual, household and community variables etc.
- Data is complemented with that from FGDs.

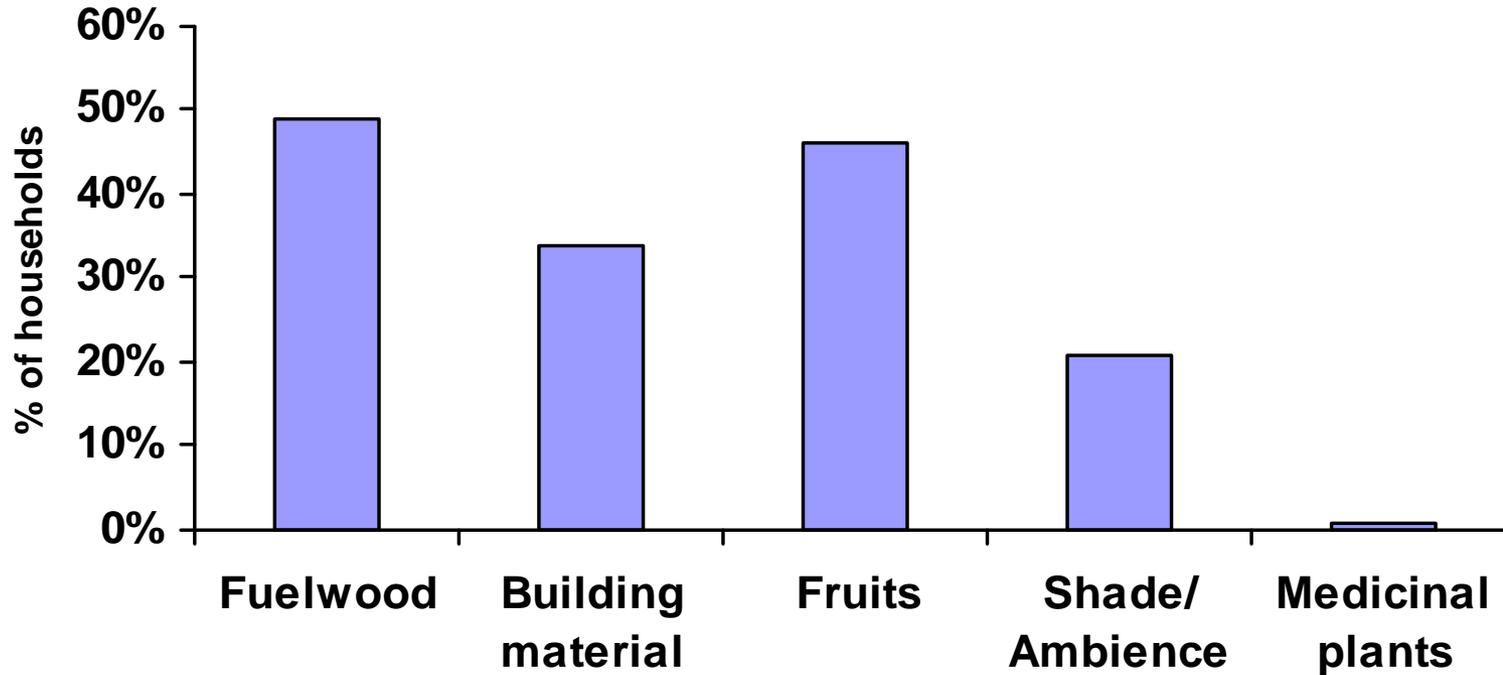
## **KENYA-Kakamega forest**

- Data from over 500 households on CFA membership, type of trees, restrictions imposed by CFA, Individual and institutional variables.

# Tanzania – Findings

- 77 percent of households have planted trees on own land.
- Main uses of the trees- fuelwood, timber and fruit.

# Main Benefits from planting trees



# Findings cont'd

- Villagers involved in PFM are actively involved in tree planting on government land too but our focus on own tree plantation.
- Forest degradation and introduction of PFM are largely responsible for planting forest on own land.
- Households resort to collect forest products from less protected forests when PFM is introduced.

# Tanzania-Findings cont'd

- Most PFM initiatives do not address problem of leakages/spillovers etc.
- The findings indicate a gap in predicting households response to reduced access. There is a hierarchy in response by households to reduced access to forests.
- **Econometric assessment**
- **Tree planting=f(degraded forest, alternative forest increased cost, time at planting etc).**

# Tree Planting Regressions <sup>a</sup>

	Trees planted in last five years	Trees planted in last five years	PFM	Trees planted in last ten years	Trees planted in the last five years
Time spent finding forest resources compared to ten years ago	0.16*				
	(0.09)				
Quantity of the resources collected now compare to ten years ago		-0.14*			
		(0.08)			
Past tree planting			3.06***		
			(0.38)		
joint forest management without alternative forests				0.23*	0.28**
				(0.13)	(0.14)
community-based forest management without alternative forests				0.37**	0.20
				(0.17)	(0.19)
joint forest management with alternative forests				-0.05	0.02
				(0.16)	(0.04)
community-based forest management with alternative forests				0.52***	0.34
				(0.20)	(0.23)
land ownership per person				-0.15***	-0.12**
				(0.05)	(0.06)
mvomero			-1.75	-0.81***	-0.32**
			(40.52)	(0.14)	(0.16)
korogwe			-1.55	-1.03***	-0.73***
			(40.52)	(0.16)	(0.19)
muheza			-0.27	0.31**	0.41***
			(40.52)	(0.14)	(0.15)
lushoto			0.00	-0.74***	-0.48***
			(0.00)	(0.14)	(0.17)
cons	-1.67***	-0.85***	-5.53	0.06	0.83***
	(0.19)	(0.30)	(0.03)	(0.14)	(0.16)

# Key Findings

- Land ownership in both cases (10 years and 5 years) decreases the probability of planting trees.
- The probability of planting trees in the last 10 years significantly increases with both JFM and CBFM when there are no alternative less-protected and less-degraded forests.
- When there are alternative less-protected and less-degraded forests, tree planting in response to JFM is not significant.
- Tree planting in response to CBFM remains significant even with the presence of alternative forests.

# Key Findings

- The key driver behind tree planting on farmers' own land is reduced access to forest products.
- Reduced access could be because of forest degradation, due to the introduction of PFM, or both, and so it is not PFM per se that is encouraging the tree planting.
- Households are first likely to “displace” their NTFP collection to less protected forests, and then plant trees on their own land when even these more distant forests are degraded.

# Kenya-Key Results and Findings

- Household's participation in forest management through CFAs reduces its level of investment in farm forestry.
- Household land size, increased market distance to selling point, education, household's awareness of the new Forest Act and security of land tenure all positively influence decision to participate in tree planting.
- Distance to the government forest, distance to the selling market, and being male households negatively impact on decision to plant trees.
- Households with large herds plant less trees perhaps because they need more land for grazing.

## Marginal effects

Variable	dy/dx	p-value
<i>Individual attributes</i>		
Education of household head	<b>0.019 (0.008)</b>	0.016**
Household Size	-0.011 (0.013)	0.397
Male-headed household	-0.090 (0.047)	0.053
Age of head	0.001 (0.002)	0.700
<i>Farm characteristics</i>		
Farm size in acres	<b>0.084 (0.020)</b>	0.000***
Distance to selling market (km)	<b>-0.053 (0.022)</b>	0.014**
Distance to selling market (km) squared	<b>0.001 (0.0005)</b>	0.030**
Distance to nearest forest edge (km)	-0.073 (0.038)	0.056
Distance to nearest forest edge (km) squared	0.007 (0.005)	0.134
Distance to buying market for forest products	0.022 (0.015)	0.143
<i>Institutional factors</i>		
Awareness on new forest laws (1 if yes, 0 otherwise)	<b>0.149 (0.063)</b>	0.018**
Access to credit facilities (1 if yes, 0 otherwise)	-0.102 (0.078)	0.188
Secure land tenure (own titled)	<b>0.141 (0.052)</b>	0.007***

\*\* Significant at 5%, \*\*\* Significant at 1%

Standard errors in parentheses.

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## Kenya-Findings cont'd

- Increased distance to government forest, has less motivation plant trees. Such households resort to raise own farm forests.
- Distance to selling market: Those extracting forest products with intention to sell find longer distance a disincentive to participate in tree growing.
- Well educated household heads are aware of the potential benefits hence higher participation levels.

# Kenya-Findings cont'd

- Large households have greater demand for forest products like fruits, firewood and medicinal plants. Also, they have enough labor for tree planting which is quite labor intensive.
- Increased farmer-farmer interaction/extension and also facilitate easy mobilization of resources both physical, human and financial.
- Large farm sizes also encourages tree plantation as there is less competition for land with agricultural activities.
- Households with insecure tenure rights tend to plant more trees as evidence of ownership should dispute arise.

# Kenya-findings cont'd

- From the findings, it's important to target household heads in dissemination of information on importance of forests at household, national and global level, and the content of the current Forest Act.
- Social capital is important in increasing forest cover.
  - There is need to develop infrastructure that promotes formation and operation of social groups, e.g. provision of tree seedlings or farm forestry funding.
- Households involved in community forest management through CFAs are associated with under-developed farm forestry.
  - ✓ Meet their farm product needs by accessing forest.
  - ✓ Hence the new forest management regime may be counterproductive to increasing forest cover in the country. There is need to prevent leakages in CFA membership.