Environment for Development Tanzania
PFM Policy Workshop

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EfDT

The Environment for Development Initiative

EfD is a capacity building program in environmental economics, focusing on research, policy advice and teaching in Central America, China, Ethiopia, Kenya, South Africa and Tanzania

Research	Policy advice	Teaching and training
International research collaboration on poverty-environment issues	To close the gap between academic research and government policy formation	Supporting graduate programmes in environmental economics

EfD's objective is to support poverty alleviation and sustainable development, through increased use of environmental economics in the policy making process

The Environment for Development Initiative for Tanzania (**EfDT**), through the promotion of policy relevant and academically rigorous research, provides economic analysis that supports national environmental management and policy to reduce poverty and promote sustainable national welfare

Background

- Based on that background and our key objectives In 2007 and 2008 researchers at EfDT undertook research project addressing the determinants of successful participatory forest management in Tanzania.
- Our main objective here today is to present summaries of the key policy-relevant findings from the research.
- A number of background documents are being prepared that provide more detail on the issues addressed in the presentation.

Background cont…

The key background documents are:

- Lokina, Razack B. and Robinson, Elizabeth J. Z. 2008 "Determinant of the Effectiveness of Participatory Forest Management in Tanzania", presented at the European Association of Environmental and Resource Economists, Gothenburg, June.
- Robinson, Elizabeth J. Z. and Lokina, Razack B. 2008. "Spatial aspects of forest management and NTFP extraction in Tanzania", presented at the European Association of Environmental and Resource Economists, Gothenburg, June.
- Robinson, Elizabeth J. Z. and Lokina, Razack B. 2008. "To bribe or not to bribe: Incentives to protect Tanzania's forests".
- Robinson, Elizabeth J. Z. and Kajembe, George. C. 2005. "Changing access to forest resources in Tanzania: Discussion paper," Mimeo.

Evolution of forest management in Tanzania

- During the past five decades, Tanzania's government forests have been protected through regulations that exclude people from collecting forest resources,
- However, insufficient funds and a lack of commitment have rendered these forests *de facto* open access and often highly degraded.
- As a measure to curb further degradation of the forest the 1998 National Forest Policy and the Forest Act of 2002, participatory forest management (PFM) is increasingly being introduced in Tanzania

Evolution of forest management in Tanzania cont...

- The initiative was mainly motivated by the declining state of Tanzania's forests and their consequent increasing inability to provide either sufficient ecosystem services or livelihood opportunities,
- Participatory forest management aims to both protect forests and reduce rural poverty.
- It advocates private and community based forest management (CBFM) for village forests and provides legal basis for Joint Management (JFM) of government forest reserves with catchments or biodiversity values.

Evolution of forest management in Tanzania cont....

- Under CBFM villagers can declare and gazette forest areas on village land as "Village Land Forest Reserves."
- Villagers take full management responsibility, setting and enforcing rules and regulations over the forest management and use, including the collection NTFPs (nom-timber forest products).
- Under JFM more restrictive extraction rules are typically implemented – often no resource collection is officially permitted – particularly in preservation reserve forests that are particularly important for ecosystem provisioning and biodiversity protection.

- Concerns have already been expressed that, particularly in government reserve forests, effective JFM could result in villagers being responsible for taking on the costs of protecting the forests.
  - Which will imply that losing their current *de facto* rights to collecting NTFPs such as fuelwood and forest vegetables and fruits.
- Our research findings supports this view and suggests more pragmatic approaches to forest management are needed.

Data and Methodology

- Data were collected from 50 villages in two regions
  - Morogoro and Tanga
- 20-25 individual households were interviewed
- Village level data-from focused group discussion
  - About 5-10 members participated in each village
- Individual household provided information on their perception of the impact of PFM interms of:
  - Impact on the forest itself
  - Other less protected forest
  - Their own access to forest resources
- Village level data provided information on:
  - Access to the market
  - Number of forest around the village
    - Whether CBFM or JFM initiative
- Other socio-economic variables were also collected

Defining the success of PFM

- PFM was introduced with the dual aim:
  - To improve the quality of forest resources
  - To reduce poverty
- To define success of PFM the two dimensions should therefore be included
- One of the expectation is that improved PFM will results in increased degradation of forest elsewhere (Lewis, 2002; Robinson et al 2005).
  - Hence the need to account for forest resource both within and outside PFM
- Ideally we need to have a good monitoring system and baseline data to be able to say something on the changes of the state of the forest.
- For the impact of PFM on villagers we need panel data that takes into account the villagers situation pre-and post PFM

Defining the success of PFM cont..

- However, many of the PFM initiative do not have baseline data
- Generating our own panel data, our research would have delayed considerably
- We therefore decided to take the second best option of conducting a cross-section survey
  - Household were asked open ended questions of whether they felt that PFM had been a success or not
  - That followed by a more specific question on how they perceived the quality of the PFM forest had changed as a results of the Initiative
- We used a scale of 1-5 where 1 denoted a perception of a very negative impact, 3 a neutral perception and 5 very positive
- This approach gives us villager's perception rather than detailed calculations of the actual impact of PFM

Results

- All the households are predominately agricultural and communities are dominated by farming as their main economic activity.
  - About 30% of the heads of hhs in the sample are uneducated
  - 57% finished at least the basic primary education
  - 10% have up to four years of secondary education
  - 3% more than three years of secondary education
  - Average age of the head of hhs is 43 years, with the youngest being 21 years old and the oldest being 90 years
  - About 29% collected fuelwood from their own farmland
  - Very few villagers are collecting NTFPs other than fuelwood from the forest
    - This is due to restrict measures that have been taken in accessing PFM forests
  - About 54% of the households in the sample have planted trees in their own farm

Results cont…

- Ordered logit model is estimated on the perception of the PFM performance
  - The dependent variable is the ordered rank of the perceived success of PFM
    - Very successful -1
    - Somewhat success or little successful -2
    - Not very successful or not at all successful -3
- Many of the control variables turns out to be statistically significant in all the three categories

Results cont..

- Household expenditure used as proxy for income is +ve and significant
  - Higher expenditure increases the probability that a hh will perceive the PFM to be successful
- If villagers own livelihoods have worsened as a results of PFM are less likely to perceive the PFM as successful
  - The variable *vlivelihood* is significant and –ve.
- If PFM is in JFM preserved forest is more successfully than PFM in JFM production forest or CBFM
- It is interesting to find also that villagers are less likely to perceive PFM as successful if they have both CBFM and JFM forests
  - Interpreting this result is tricky-villagers may have different criteria of success which could be influenced by information given to them by NGOs and other bodies working on the initiative

Results cont…

- To this end we found is better we focus on villagers' perceptions on particular aspects of PFM
- We undertook separate Logit model estimations for three dimensions
  - Perception on quality of PFM forest itself
  - Perception on other forest around the village
  - Perception on the villagers' access to forest resources

Results cont…

- Results suggests that men are more likely than women to perceive the quality of PFM forest to have improved.
- Large hhs, better –off hhs and those with their own sources of fuelwood are likely to perceive improved forest quality as a result of PFM
- Household who are more reliant on forests for their fuelwood are less likely to perceive that the quality of the JFM forest has improved considerably
- Villagers with one or more unprotected forest in addition to the PFM forest are significantly more likely to perceive that the PFM forest quality had improved considerably
  - This is an indication of the possible displacement effects as predicted in Robinson et al (2005).
  - Thus villagers displace their extraction activities into other less protected forests

Results cont…

- Women are more likely than men to perceive that the access to forest resources has worsened
  - In most cases women are the one who are more involved in NTFP collection than men
- More dependence on forest for fuelwood likely to perceive that forest access has worsened with the PFM initiative
- Typically JFM have much stronger access restriction than CBFM as the later is owned and managed by the villagers and in most cases is a production forest
  - Villagers are not permitted to collect anything from the preservation JFM forest
  - The restriction is even tight in JFM production forests
- However focused group discussion and the field observation indicates that during the initial stages of PFM whether CBFM or JFM strict collection moratoria had been in place that lasted for 5 years or more

Policy recommendations

- In this section we present a number of policy recommendations that have arisen from our research.
- These policy recommendations reflect the reality of forest management in Tanzania:
  - that local communities have traditionally relied on forest products for home use and income generating activities;
  - that many of Tanzania's forests provide key ecosystem services that are valuable at the local, national, and international level;
  - and that the government has limited funds to protect these forests

- *Implement PFM within a landscape approach that takes into account all the nearby forests*
  - What we see in most of PFM is that the implementation is typically done on a forest-by-forest or village-by-village basis, rather than using a landscape approach.
  - But protecting one forest through PFM may displace villagers' NTFP harvest into other less protected forests, possibly causing greater ecological damage

Policy recommendations cont..

- Practical landscape approaches include:
  - Ensuring that where there is a JFM forest (where forest resource collection is prohibited) there is also a CBFM forest (where villagers collect forest resources under managed conditions).
  - Introducing buffer zones into JFM forests from which villagers can collect limited resources. Buffer zones reflect the reality that villagers often depend on forest resources;
    - can reduce the likelihood that villagers collect from more distant, possibly more vulnerable, forests;
    - can reduce enforcement costs; and
    - can reduce conflict.
  - Where there is available land, introducing village woodlots and encouraging tree planting on private landholdings

Policy recommendations

- *Provide villagers with incentives and authority to protect forests*
  - Communities living near to forests may understand that they get greater benefits from well-managed forests:
    - directly through collection of timber and non-timber forest products, and indirectly from improved moisture levels.
    - They may also recognise that well managed forests benefit people living further away, through the provision of water to distant cities;
    - and in contributing to global biodiversity.
  - But many villagers feel worse off as a result of the introduction of PFM, particularly with respect to their access to forest resources.

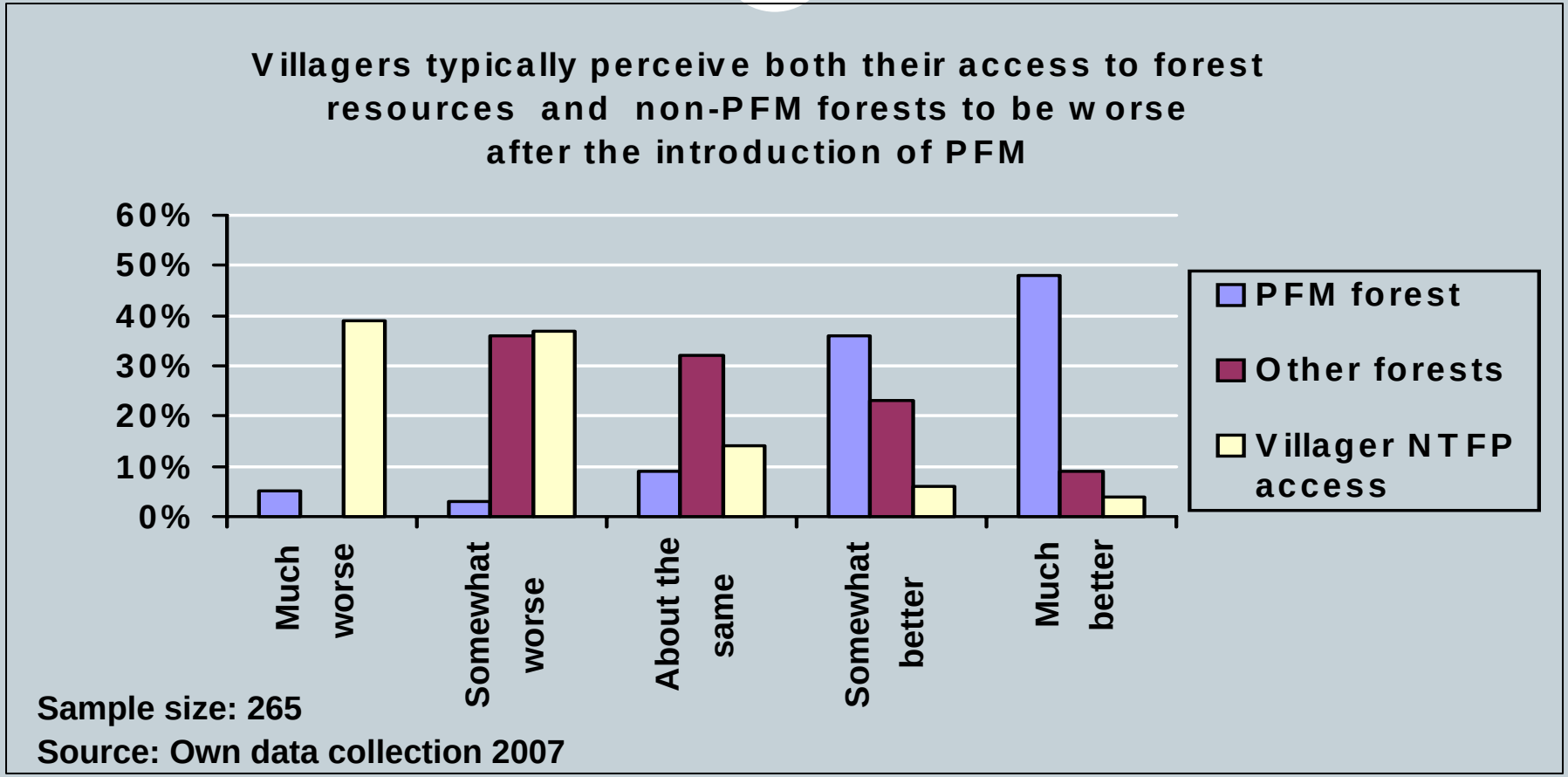
Policy recommendations cont..

- Community involvement in forest management does not automatically ensure that forests will be protected through voluntary restrictions.
- Local communities have immediate pressures, such as the need for fuelwood, medicine, food and income, which nearby forests provide at low cost.
- “Outsiders” have few incentives to voluntarily restrict their use of forests.

Policy recommendations cont..

- Villagers are more likely to protect the forests if:
  - They have continued and improved access to forest resources, even if this means allowing collection of forest resources from protected forests.
  - The benefits to the village from the introduction of PFM are at least as great as the costs.
  - The benefits from PFM are shared equitably and transparently among the nearby communities and households.

Policy recommendations



Policy recommendations cont…

- *Employ more creative mechanisms for realizing revenue from PFM forests*
  - A key problem for managing tropical forests is that benefits may be external to the local community or government, or the benefits may accrue many decades into the future.
  - But local communities typically bear the immediate costs of protected forests, both
    - directly through enforcement activities, and
    - indirectly through reduced access to the forests and sometimes increased damage to their crops from wildlife.
  - A key challenge is to realise the value of these forests for those who are affected negatively by the introduction of PFM,
    - thereby improving livelihoods and reducing conflict and making the protection of the forest more sustainable and more equitable. Options include:

Policy recommendations cont..

- Payment for environmental services (PES),
  - This recognises the need to bridge the interests of landowners and outside beneficiaries through compensation payments.
  - PES schemes include carbon sink functions, watershed protection, and biodiversity. There are few examples in Africa at the moment, but PES has been discussed in relation to the Uluguru mountains, Rufiiji Basin and Pangani Basin and their role in ensuring water supplies in the cities of Dar es Salaam and Morogoro.

Policy recommendations cont…

- The clean development mechanism (CDM) and REDD. Afforestation and reforestation projects are eligible for credit under the CDM during the first five-year commitment period of the Kyoto protocol.
- African countries have the potential to be involved in selling and trading credits with rich countries but so far sub-Saharan Africa has not taken advantage of the process and there are very few examples of credits for improved forest protection

Policy recommendations cont...

- Even if these benefits are realised, just as important is how the benefits are shared among the stakeholders:
  - to what extent should nearby villagers be compensated for reducing their use of the forests (when that forest use has often been *de jure* illegal);
  - how will these benefits be distributed among village households;
  - what proportion of the funds should be used for enforcement activities;
  - what say should local villagers have in the processes and institutions. These issues have proven tricky to address for earlier initiatives and there is no reason why they will be any easier to address with respect to mechanisms such as PES and CDM.

Policy recommendations cont…

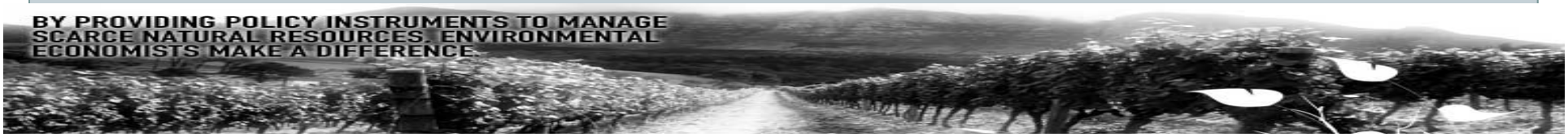
- *Improve enforcement mechanisms*
  - Village Environmental Committees (VECs) have been empowered to undertake enforcement activities – almost always foot patrols –
  - but the consequences have been mixed, in part a reflection of the different modalities that have been adopted, particularly concerning compensation for patrols.
  - Officially enforcement is voluntary, but some patrollers get a share of the fine money, some may take bribes where there is no formal compensation.
  - It is important to think of a , transparent, and suitably funded enforcement mechanisms that will reduce elite capture;
    - improve monitoring of enforcement effectiveness;
    - increase scope for revenue generation; and
    - improve the credibility and long-term sustainability of the PFM initiative.

Policy recommendations cont…

- To achieve the following has to be in place
  - Formal written records of illegal activities and fines collected are mandatory.
    - Village patrollers are formally compensated through external enforcement budgets, supplemented with fine revenues.
    - Village patrollers are given a formal share of fine revenue.
  - This will reduce the likelihood of bribes; provides an incentive for the patrollers to put effort into enforcement; and could reduce conflict

Policy recommendations cont…

- *Ensure that forest management policies are flexible over the transition period as the PFM forests regenerate*
  - We found that the transition phase of both CBFM and JFM often includes a full embargo on collecting resources from the forests that lasts at least five years.
    - These embargos enable the forest resources to regenerate but they typically have a very negative impact on villagers' livelihoods.
    - Transition strategies are particularly important for villages where there are no alternative forest areas for villagers to collect NTFPs, and where villagers have small land holdings.



Policy recommendations cont…

- This transition phase can be better managed if:
  - There is a better understanding of the differential ecological and livelihood impact of allowing or banning different extraction activities as the PFM forest regenerates.
  - Rather than imposing blanket bans, even during the transition periods villagers are permitted to extracted some forest resources.
  - Transition strategies such as tree planting schemes, butterfly farming, or bee keeping are in place before villagers lose their access rights to forests.
  - Transition strategies are specific to each particular situation.

Conclusion

- PFM institutional arrangements that do not recognise the realities on the ground –
  - the importance of forests for both subsistence needs such as fuelwood, medicinal plants, and home building materials, and income-generating livelihood activities,
  - the difficulty in getting villagers to enforce access restrictions without reward – are likely to evolve over the longer term in response to natural pressures.
  - Although the evolution might be towards more sustainable practices, institutional arrangements could simply break down resulting once again in *de facto* open access forests.

Thank You