



Tropentag 2015, Berlin, Germany  
September 16-18, 2015

Conference on International Research on Food Security, Natural Resource  
Management and Rural Development  
organised by the Humboldt-Universität zu Berlin and the Leibniz Centre for  
Agricultural Landscape Research (ZALF)

## Farmers' Perspective on Incentives for Ecosystem Services – Insights from Kenya and Tanzania

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### Introduction

Farmers rely on ecosystems for crop cultivation and animal husbandry, but could at the same time provide ecosystem services (ES) as benefits for the larger society. Despite this positive interlink, ecosystems are under threat in an environment ever more competitive for land, market access and cheap food provision. Producers often resort to unsustainable land use (reviewed in FAO, 2007; Lopa et al., 2012; Kajembe et al., 2013) thereby endangering their own long-term production potential but also affecting the larger environment. ES are mostly defined as common goods; additional efforts are necessary to reach a desirable level of provision. Incentives for Ecosystem Services (IES) is one approach to deal with this challenge by looking for common ground among different agro-ecosystem actors, providers and beneficiaries of the ecosystem service. It requires a coordinated effort by the public and private sector, civil society and rural population (FAO, 2015). Within the framework of an ongoing FAO project, this study visualizes different motivations and their relative importance in the overall short- and long-term decisions of farmers from four different environments in Tanzania and Kenya.

Farmer commitment to sustainable practices is particularly crucial for the viability of such IES schemes. Otherwise, money will be spent ineffectively and the scheme might only deal with symptoms but not reach the core of the problem. Furthermore, ES providers ideally are motivated to continue fostering ES without constant payments or other external incentives. This situation only sets in if farmers' perspectives are understood and known at the beginning of the process. This study therefore looks at the question, what factors – and to what respective degree – motivate ES providers to adopt sustainable farming practices by entering IES schemes.

### Material and Methods

Based on a review of relevant literature and the analysis of case studies of different developing and industrialised countries, initial hypotheses on farmers' barriers as well as sources of motivation for the adoption of sustainable agricultural practices have been formulated. In early 2015, the resulting hypotheses and models for best practice were debated in four different IES environments in Tanzania and Kenya. Farmers – including youth and women – were asked about their reasons to (not) commit to sustainable agro-ecosystems. Furthermore,

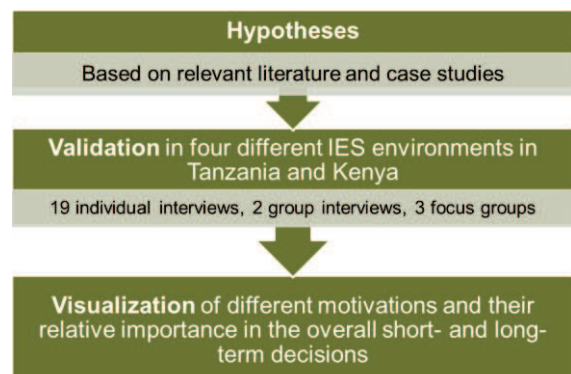


Figure 1: Methodological approach

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different factors of motivation to adopt sustainable farming practices and their relative importance in the overall short- and long-term decisions of farmers have been visualized in 19 individual interviews, two group interviews and three focus group discussions.

The four different IES environments considered for this study are:

- 1) Upper Tana River Basin, Kenya. The aim of the IES scheme is to improve quality and quantity of the river leading into Lake Naivasha. Promoted improved agricultural practices include: Vegetation buffer zones along riverbanks, agroforestry, terracing, reforestation of degraded lands, grass buffer.
- 2) Sasumua Watershed, Kenya. Aim: to foster improved hydrological functions, reduced soil erosion and minimized sedimentation and siltation through agroforestry, terracing, as well as grass strips along contours and waterways
- 3) Olare Orok Conservancy, Kenya. Aim: to improve wildlife habitats in the conservancy through changed grazing system and resettlement of pastoralists.
- 4) Morogoro Watershed, Uluguru Mountains, Tanzania. The aim of this still-in-process IES scheme is to improve the quality and regularity of water runoffs through terracing, reforestation of degraded lands, agroforestry and grass buffer.

## Results and Discussion

The main hypotheses regarding farmers’ perspectives can be grouped into (i) barriers to adopting sustainable farming practices, (ii) barriers to participating in the different IES schemes and (iii) factors of motivation to adopt sustainable practices through participating in IES schemes.

Defined property and/or user rights are seen as a basic condition for sustainable farming practices, but can become a major barrier if insecure or missing. Lack of financial means to overcome initial reduction in yields/income or to pay initial investments, lack of information about ES and its interrelatedness with farming practices, unavailable or unknown alternatives to current practices, cultural reasons for current practices, the absence of adequate extension services, and risk aversion of (subsistence) farmers are other barriers to adoption (e.g. FAO, 2007; Bedru, 2010; Kajembe et al., 2013). Main barriers to participating in IES schemes are missing trust between stakeholders, inappropriate design of scheme, social and cultural factors hindering participation, motivational crowding-out, implementation failures, and prior negative experience with similar programs (e.g. Calle et al., 2009; Lopa et al., 2012; Kajembe et al., 2013).

Field	Source of motivation and possible incentives
<i>Economic</i>	In-kind incentives: seedlings, fertilizer, improved breeds monetary incentives: payments, grants -> higher yields, reduced input costs
<i>Knowledge</i>	Training and extension service, demonstration plots
<i>Institutional</i>	land titling, improved market access, social networks, credits
<i>Social</i>	peer pressure and community encouragement
<i>Cultural, individual attitude</i>	Long-term viability of farm, good stewardship, environmental concerns, belief in scheme outcome

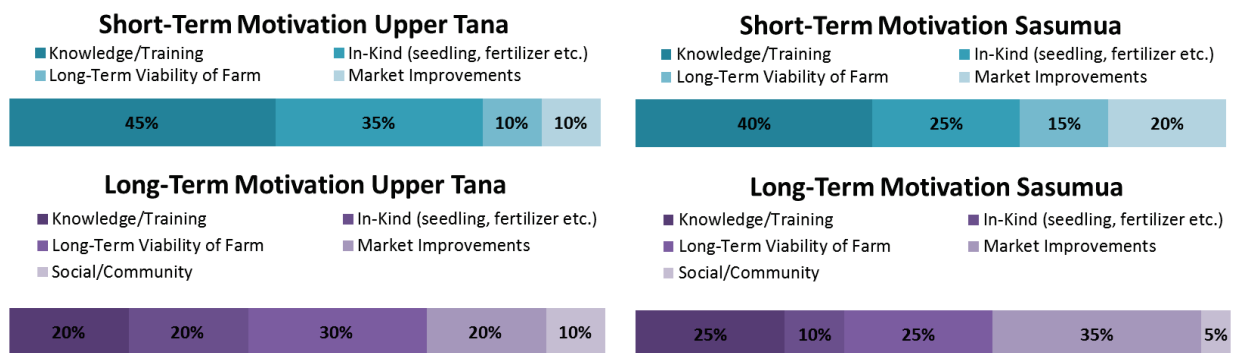
Incentives for the provision of ES ideally motivate ES providers to overcome these barriers. Literature (e.g. Calle et al., 2009; Wostry, 2014) and experience from other case studies dealing with IES (FAO IES data base, 2013) suggests that monetary and in-kind incentives are perceived as a jump start or reward by many farmer communities but that other factors play an important role too. Sources of motivation can be

**Figure 2:** Categories of sources of motivation

divided into economic, knowledge related, institutional, social, cultural and individual attitude related drivers. A basic condition is that ES providers consider themselves as well or better off (economically, socially) when participating in the scheme than without participation (FAO, 2007; Bedru, 2010; Namaalwa and Nabanoga, 2013). Economic benefits resulting from higher yields, lower input costs, new income sources or better market access are therefore crucial in the long

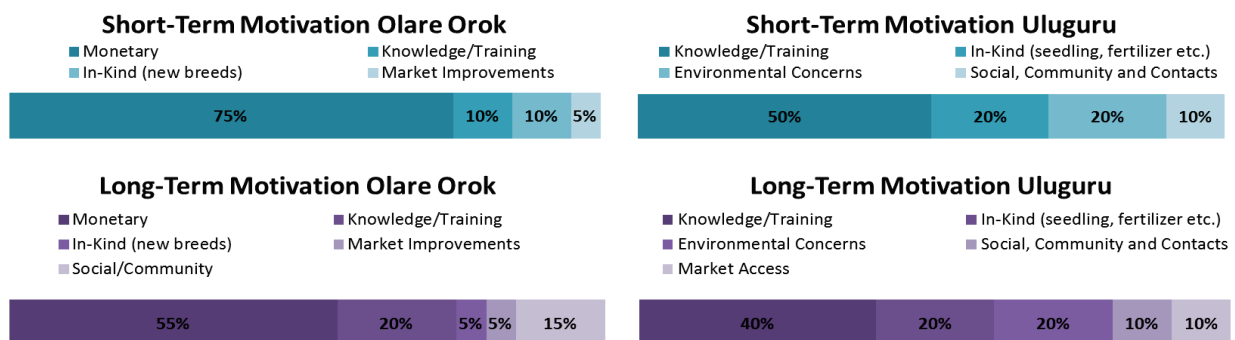
run (e.g. Calle et al., 2009; Lopa et al., 2012). At the same time, personal attitude to the environment and the conviction that changes in agricultural practices will bring benefits to individuals or to the community as a whole are pivotal to the viability of a scheme (e.g. Calle et al., 2009; Bedru, 2010; Kajembe et al., 2013). Scheme viability can be enhanced by building capacity among participants and offering non-financial benefits. Including ES providers into scheme design activities helps building trust between stakeholders and accounting for social and historical factors hindering participation. Thus some of the main barriers to participate in IES schemes can be tackled. Fostering stewardship and a higher level of ownership among participants is contributing positively as well (e.g. Namaalwa and Nabanoga, 2013).

The importance of various motivational factors to participate in IES schemes and thus adopt sustainable practices differed among the four IES environments considered for this study.



**Figure 3:** Visualization of different sources of motivation for Upper Tana River Basin and Sasumua Watershed

While in the case of Upper Tana River Basin, Sasumua Watershed and Uluguru Mountains the provision of training for sustainable farming practices was the greatest short-term motivation for the interviewed farmers, financial incentives made up 75% of the motivation for participants of the Olare Orok Conservancy scheme. For the latter, monetary payments had to compensate income losses from not grazing their cattle within the defined areas and were therefore indispensable. In the three water related cases, the adoption of sustainable farming practices led to improved soil fertility and higher yields rendering financial payments redundant. In-kind incentives, the long-term viability of the farm and market improvements, however, played important roles. In the Tanzanian case, environmental concerns and social contacts contributed 10 to 20% each. This might be due to the fact that these farmers first received training and already started to implement some of the new practices before the IES scheme started.



**Figure 4:** Visualization of different sources of motivation for Olare Orok Conservancy and Uluguru Watershed

On the long run, market improvements and – understandably – the long-term viability of the farm gain in importance while the weight of training and in-kind incentives decreases. In the case of the Olare Orok Conservancy scheme, however, trainings gain in importance over time as participants desire to diversify their incomes and reduce their reliance on the monetary payments.

## Conclusions and Outlook

Even though the emphasis was laid on different factors of motivation for each case, some basic conditions are true for all four cases: Economic viability must be given under all circumstances. Trust in the scheme, its stakeholders and the measurements' outcomes are vital for the long-term ES provision. Fulfilled promises and participative demonstration plots hereby are supportive. Information, training and other in-kind incentives are, therefore, often more important than financial incentives. The different results regarding motivational factors of the analyzed cases implies that ES providers' expectations and motivations should be identified and clarified in advance for each IES scheme separately. Based on such an assessment, a case-specific combination of different incentives targeting intrinsic and extrinsic motivation is necessary.

The qualitative data collection and analysis of case studies and the consolidation and validation in direct interviews and group discussions proved to be a valuable method to identify farmers' perception on IES. The resulting findings, however, depend on the diversity and selection of interview partners and do not always adequately account for the history of each IES environment and interview partner.

Evaluation and visualization of farmers' prioritized motivations regarding ES provision support the implementation of IES schemes with a long-term focus across large numbers of producers. Results of such an evaluation must reach a critical mass of actors to have a real impact and make a change. The dissemination of our findings through policy dialogues seeks to stimulate the ongoing debate on how to improve framework conditions for viable IES schemes and might ultimately lead to increased consideration of farmers' perspectives and their involvement in the negotiation, implementation and monitoring of IES schemes. Knowing land managers' extrinsic and intrinsic motivations in relation to various adoption barriers for sustainable agricultural practices allows for designing viable and effective incentive packages for ES provision.

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