

*Full Length Research Paper*

# The impact of reducing emissions from deforestation and degradation (REDD) on forest-dependent livelihoods by gender in Tanzania and the role of the institutional framework for equitable benefits

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Tanzania has been receiving significant funding from donor countries for the implementation of programmes to reduce emissions from deforestation and degradation (REDD). REDD is seen as an opportunity to enhance conservation and livelihoods. But what is the impact of REDD on gender? This is an area of inquiry that has not been critically looked into. This study was an attempt towards filling this information gap. It was conducted in Kilosa District. A total of 294 households were selected randomly for interviews. There was also consultation with focus groups and key informants. Structured and semi-structured questionnaires were used to gather information. The data was analysed using statistical and livelihoods models. The findings reveal a high level of dependence on the forest for livelihoods by the communities but nevertheless they were in favour of the REDD programmes if the programmes will enhance their livelihoods and they will be fully involved in managing the programmes. Male respondents were more interested in knowing a period to wait before they could start benefiting from the programmes while women were more concerned about the sustainability of the benefits they would receive. We conclude that for the REDD programmes to be successful, gender issues must be identified and mainstreamed.

**Key words:** REDD, gender, livelihoods, institutional framework, Tanzania.

## INTRODUCTION

Tanzania has been receiving significant funding from donors, including Norway and the World Bank, for implementing the programmes to reduce emissions from greenhouse gases as a result of deforestation and degradation (REDD). Tanzania is one of the nine countries piloting the United Nation's REDD programmes (Burgess et al., 2010). A draft of the REDD strategy has

already been published in Tanzania, which was developed by the REDD task force with the assistance of the REDD secretariat in the country. There are a number of ongoing REDD activities in the country. In addition, there is capacity building, whereby the UN-REDD programme in Tanzania is teaming up with the World Bank Institute (WBI), the Forest Carbon Partnership Facility (FCPF), and the ASB-Partnership at the World Agroforestry Centre (ICRAF) to deliver training workshops on the opportunity cost of the REDD (UN-REDD 2010) programme.

At present, REDD is seen as an opportunity to enhance

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support for conservation as well as promote sustainable livelihood options to reduce the pressure on forests. It is argued that REDD systems could offer benefits to poor people, particularly in terms of increased, stable and long-term financial and non-financial benefit flows to rural areas (Peskett et al., 2008).

In Kilosa District there is a REDD project by the name of “making REDD work in Kilosa District”, Tanzania. The project aims to reduce greenhouse gas emissions as a result of deforestation and degradation in Tanzania in ways that provide direct and equitable incentives to communities to conserve and manage the forests sustainably. The project supports the development of a Community Carbon Cooperative hosted by the existing Network of Tanzanian communities engaged in participatory forest management (<http://www.planet-action.org/web/85-project-detail.php?projectId=6706>).

The Cooperative will aggregate voluntary emission reductions from it. The project involves about 50,000 ha (MJUMITA, 2010).

However, what is the likely impact of REDD on forest-dependent livelihoods, particularly in terms of gender? This is an area which has not been critically looked into. Both climate change itself and related policies are likely to have wide-ranging effects on gender relations, especially in developing countries (Terry, 2009). To date, gender issues have hardly figured in the international policy discourse, including the UN Framework Convention on Climate Change and its Kyoto Protocol (Terry, 2009). Gender-related inequalities are pervasive in the developing world. Although women account for almost 80% of the agricultural sector in Africa, they remain vulnerable and poor (Danton, 2002). The threats posed by global warming have failed to impress on policy-makers the importance of placing women at the heart of their vision of sustainable development (Danton, 2002).

REDD clearly presents some opportunities for social outcomes but also risks and serious negative outcomes. Current discussion on the social impacts of REDD is weak with respect to the gender dimension (Gurung, 2009). What is most tragic is that women may suffer, especially from the false solutions for climate change being negotiated internationally. Apart from this hypothetical thinking there has been inadequate empirical evidence to test this fear. Undertaking studies on the impact of REDD on livelihoods by gender and case by case is important before the implications of a robust policy are realised.

This study was an attempt at contributing to this goal. It examined the impact of REDD on forest-dependent livelihoods in Tanzania, focusing on Kilosa district. The focus of the analysis was on gender. The District was chosen for three reasons. First, the poverty level in the district is high. Secondly, the dependency on forest resources for livelihoods is high. Thirdly, it is one of the districts in Tanzania that are under pilot REDD +

programmes. The findings from this study will inform REDD stakeholders, including the communities, non-government organisations, civil society organisations, policy makers and the international community on how best REDD programmes could be implemented to address REDD but also to enhance equitable benefit sharing for forest-dependent livelihoods.

### Objectives of the study

The general objective of the study was to come to an understanding of the likely impacts of REDD on forest-dependent livelihoods by gender in Tanzania, using the case of Kilosa District. Specifically the study sought to address the following objectives:

1. To investigate the level of dependency on the forest for livelihoods in Kilosa District by gender,
2. To find out the gender-based perceptions and expectations of REDD programmes,
3. To analyse the current forest management institutional frameworks in Tanzania and the implication on REDD programmes.

### The theoretical background of REDD by gender

REDD is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development (UN-REDD, 2009; Gurung, 2011). Both climate change itself and related policies are likely to have wide-ranging effects on gender relations in developing countries like Tanzania. Poor women face many gender-specific barriers that limit their ability to cope with and adapt to the changing climate (Terry, 2009). According to Terry (2009), these barriers must be removed in the interests of both gender equity and adaptation efficiency.

Women are the primary users and managers of forest resources and, because of their local knowledge and high dependence on non-timber forest products (NTFPs) for their livelihoods, it means they have a major role to play in protecting the forest (Coad et al., 2008). Seventy percent of the 1.3 billion people in the developing world living below the threshold of poverty are women. It is important that the consequences of climate change and REDD should not lead the already marginalised sections of communities into further deprivation (Danton, 2002). According to Danton (2002), if a climate change policy is about ensuring a sustainable future by combining development and environmental issues, it must take into account the interests of not simply all the stakeholders but should also consider gender-based issues. It is argued that the Global Environment Facility and the Clean Development Mechanism of the Kyoto Protocol

can play a role in ensuring sustainable development, provided they are implemented in a way that women and the poor are not at disadvantage (Danton 2002).

Forests contribute to the livelihoods of many of the 1.2 billion people living in extreme poverty, and the large majority of these poor (over 70%) are women (UNDP, 2011). In developing countries, gender roles are defined by cultural norms and practices. The primary responsibility for food production and preparation as well as caring for the household is women's, but their role in forest management is usually limited to meeting subsistence needs, for example, gathering fuel wood, medicinal products, wild food and fodder for the livestock, as well as selling small quantities of fuel wood in local markets. Women's major responsibility for crop and food production and preparation in most developing world countries renders them more susceptible to the impacts of climate change, as they must adapt to declining water supplies, climate variability, natural disasters, pest outbreaks, changing precipitation patterns and other impacts of climate change on crop production. Women and men derive different benefits from the forests. Men's benefits from forests are more likely to be linked to timber and NTFP extraction for commercial purposes. Any incentive scheme that favours the carbon value of ecosystems more than other values may lead to serious negative impacts if women's access is denied because of conservation measures (WRFM, 2012). Conservation measures that bar entrance into protected forests (as part of a nation's REDD programme, for example) also increase the demands on women's labour and time considerably, which affects other aspects of the family, such as forcing parents to remove their girl children from school to help with the collection of fuel wood (Gurung, 2009) need to be avoided in the REDD programmes. Women are commonly without any formal rights to land or forests. Consequently, women have little say in relation to forest governance (CIFOR 2012).

### **The conceptual framework of REDD and gender**

The impact of REDD in terms of gender will depend very much on the institutional set-up. Well framed institutions that mainstream gender issues are likely to ensure the equitable sharing of benefits by both genders. On the other hand, an inequitable benefit-sharing mechanism of REDD is likely to occur if gender issues are not mainstreamed. The equitable involvement of women in forest management is also likely to improve the conservation of the forests. Studies show that groups with a high proportion of women on their executive committee (EC) have seen a significantly greater improvement in the condition of the forests (Agarwal, 2009). In Nepal, a study showed that groups with all women ECs had better forest regeneration and canopy growth than other groups (Agarwal, 2006). The male-female balance in forest management groups influences

forest governance (CIFOR, 2012). Policy makers and advocates of joint forest management (JFM) agree that women should be full participants and that their involvement is especially important because of the nature of women's work (Locke, 1999).

In Tanzania, the management of local natural resources by village communities is widely accepted as an institutional imperative. It is therefore essential to make sure that gender issues are mainstreamed in these institutions, especially from the perspective of the more disadvantaged groups like women (Agarwal, 2001). However, most forest policies and organizations continue to overlook women's specific needs and contributions regarding forests, in part because forestry is regarded as men's work (Gurung, 2009). There is in general an institutional gender blindness that renders women's participation and contributions invisible and allows forest management to be incorrectly treated as gender neutral (Gurung, 2009).

In this study two scenarios of the REDD institutional framework were hypothesized. The first scenario is where the REDD institutional framework has mainstreamed gender issues. Consequently, gender issues will be well addressed and this framework will lead to equitable benefit sharing. The second scenario is where gender issues are not mainstreamed. Therefore gender issues will not be taken into consideration completely or partially and there will be inequitable benefit sharing (Figure 1). The latter scenario is not encouraged if REDD is to achieve its dual objectives of forest conservation and rural development.

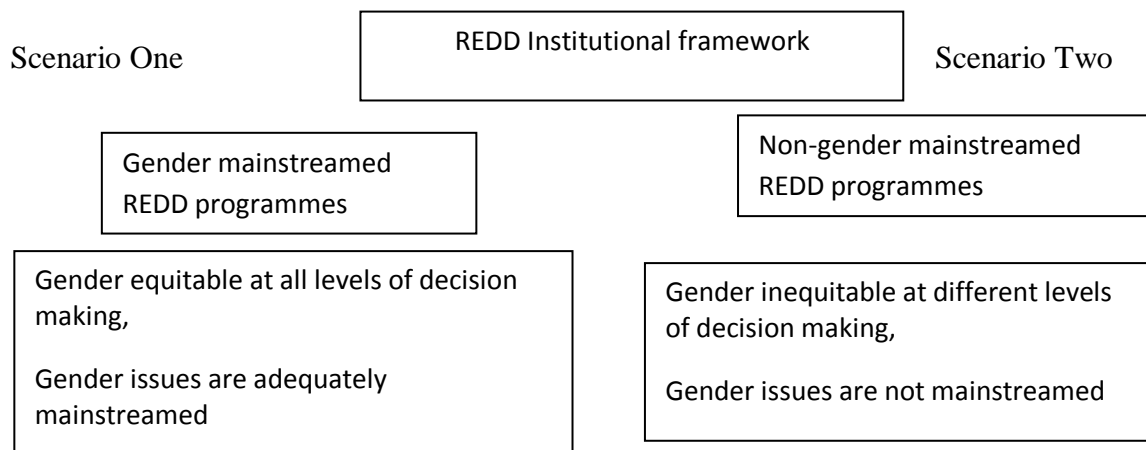
## **MATERIALS AND METHODS**

### **The study area**

Kilosa District is located between latitudes 5°55' and 7°53' south of the Equator and longitudes 36°30' and 37°30' East of Greenwich (URT, 2010). The District covers a total area of 14,245 square kilometres, of which 536,590 ha are suitable for agriculture, 483,390 ha are under natural pasture, 323,000 ha comprise Mikumi National Park, 80,150 ha are under forestry cover and the remaining 14,420 ha comprise urban areas, water and swamps (URT, 2010).

According to the 2002 Population and Housing Census, Kilosa district had 488,191 people, where 243,329 were males and 244,862 were females, with an average of 4.6 people per household (URT, 2002). This is slightly lower than the national average of 4.9 persons per family. The growth rate is 2.5% which makes the 2010 population projection to be 587,967 people. This is slightly higher than the national average population growth rate of 1.4% (URT, 2002). The current gender ratio is 99:100 (male-female) and the District population density is 34 persons per square km. This is much lower than the national average, which, according to the World Bank Report released in 2011, was 50.85 persons per sq km.

More than 80% of the District's population is employed in agricultural activities and according to the Population and Housing Census (URT, 2002) very few are formally employed, keep livestock, undertake fishing and other minor activities.



**Figure 1.** Conceptual framework for REDD Gender-based institution framework.

Approximately 93% of the land used for farming is under subsistence crop production, while 7% is used for cash crop production. Most people produce both subsistence and cash crops, whereby the major food crops are paddy, maize, beans, cassava and bananas and the major cash crops are sugar cane, simsim and sunflower. However, crops like rice, maize and beans can fall into both categories.

Rain-fed agricultural tools are poor, dominated by the hand hoe, with little use made of inputs such as fertiliser. There are also poor post-harvest techniques. As a result, the farming sector has not yet contributed much to the District's economy convincingly (URT, 2010). Poor farming tools and methods have also been one of the causes of deforestation and shifting cultivation in the district.

The forest cover has been under considerable pressure not only from agricultural activities and livestock grazing but also from the extraction of forest products. Forests provide firewood, timber, fruit, medicines, wild vegetables and fodder for animals, shade, and material for various tools (Gausset et al., 2007). Forests and forest trees are the source of a variety of foods that supplement and complement what is obtained from agriculture, as well as of fuel with which to cook food, and of a wide range of medicines and other products that contribute to health and hygiene (Harrison, 2006). These common pool resources are shared by many users and support rural livelihoods in diverse ways, providing water, grazing, raw materials for tools and buildings, fuel, food and marketable goods. Such resources support 'traditional' livelihoods but also offer opportunities to support new economic opportunities, often linked to private sector enterprises, including eco-tourism (Harrison, 2006). Common pool resources often provide a safety-net for the poor that helps reduce risk and vulnerability.

The District's infrastructure is relatively poor. It has 47 roads covering 1,429 km, of which 513 km are regional roads and 916 km are district roads. As in many other parts of rural Tanzania, most of the feeder roads are in a poor condition, which affects the movement of goods from one area to another. However, villages adjacent to the Dar es Salaam-Iringa and Dodoma highways can easily find markets for their products, including forest products such as charcoal, timber and logs, which accelerate deforestation and degradation of the forest in the district.

### Sampling framework and sample size

The sampling framework is defined as a set of elements from which a researcher can select a sample of the target population (Currivan,

2012). A sample on the other hand is a subset of a population that is obtained through some process, possibly random selection or selection based on a certain set of criteria, for the purposes of investigating the properties of the underlying population (Evans et al., 2000).

In this study, a detailed household survey of a representative sample was conducted in 11 villages in Kilosa District. To ensure a representative sample the survey used the national sample frame established in 2002 by the National Census Department. From the frame villages were selected purposively to target those under the REDD pilot. In the respective villages, households were categorised into male and female-headed households and respondents from each category were drawn randomly from the list of households found in the village government offices. Using Slovin's Formula, the total number of households ( $n$ ) to be surveyed was determined using the formula:

$$n = \frac{N}{1 + Ne^2}$$

Where,  $n$  is the sample size between 5 and 10%;  $N$  is the total number of households in the area; and  $e$  is the desired margin of error.

A total of 294 households in 11 villages, which is 5% of all the households in those villages, were selected purposely as they are conducting the pilot REDD (Table 1).

### Data collection

Both primary and secondary data were collected. First there was an extensive review of the earlier work on REDD and gender. This helped to familiarise the consultants with the sector and to establish the gap needing to be filled by the collection of data from the field. The data collection tools were prepared concurrently with the literature review. The tools developed comprised a household structured questionnaire and a checklist for focus group discussions. The data collected included demographic characteristics, settlement patterns and prevalent economic activities, food security issues, environmental issues, land tenure regimes, the status of social services and level of dependence on natural resources. Gender issues in terms of livelihoods were investigated. Field visits began in August 2011 and ended in

**Table 1.** Income from agricultural commodities (T.shs).

Characteristic	Male n = 247	Female n = 47	Significance level
Maize	46841 (22216)	35250 (21800)	**
Number of respondents	67	12	
Beans	85219 (41626)	48428 (47355)	***
Number of respondents	54	8	
Paddy	47808 (21003)	45000 (7071)	**
Number of respondents	54	5	
Sorghum	29500 (8261)	18600 (13500)	***
Number of respondents	67	12	
Sunflower	98556 (88305)	60000 (15200)	***
Number of respondents	72	9	
Pigeon peas	70000 (14142)	28556 (18305)	***
Number of respondents	32	2	
Simsim	48716 (59579)	52087 (49240)	NS
Number of respondents	32	9	

Figure in brackets indicates standard deviation). \*\*\* Significant at 1% level; \*\*significant at 5% level; NS=Not significant.

September 2011.

The target of the discussion was to conduct interviews with the heads of households. However, where the head of a household was unavailable at the time of the interview, a spouse, child or any family member who was conversant with family issues was interviewed on behalf of the family.

There were also consultations with focus groups and key informants. These consultative meetings were held separately with village government leaders, and groups of women groups, youths and adult men. The aim of these meetings in the selected villages was to get an overview of the perceptions of REDD by different groups and by gender. Data were analysed using SPSS and Excel. Descriptive statistics were used to illustrate people's perceptions.

## RESULTS AND DISCUSSION

The literature cited earlier hypothesises that REDD presents some opportunities for social outcomes but also risks and serious negative outcomes. The literature also suggests that women may suffer, especially from the false solutions for climate change being negotiated internationally. We test these hypothetical thinking based on the results obtained from this study.

### Demographic characteristics

#### *Age and marital status*

This study had a total of 294 respondents, of whom 247 were men and the remaining 47 were female. The larger number of male than female respondents was not anticipated. In African culture most people are married and the head of the family is normally the husband. On the average, the respondents were aged 43 years and there was no significant difference between men and women. Most of the respondents were married (75.5%)

and only a few were widows/widowers (13.3%), a few had never married (4.7%), few were separated (4.4%) or divorced (2.0%). A point to note is that a considerably large number of female heads of households were widows (44.7%) and normally a high proportion from this group of women does not own any land and the great majority live in absolute poverty. They depend on communal forests and the farm on their late husbands' land or relatives for their livelihood. REDD must take note of this challenge and develop an institutional framework that will continue to sustain the livelihoods of such groups. Failure to do that by REDD may jeopardize the livelihoods of the women and vulnerable groups in society.

#### *Education level of the respondents*

A high proportion of the respondents completed standard seven (63.9%). However, a significant number of women respondents (36.2%) did not even reach standard 4 of their formal education. It is likely that most of these people are illiterate in the sense that they do not know how to read or write. This again is a challenge as these people may not even know about the rights brought to them by the REDD economy. Also, their contribution to the discussion and dialogue on matters relating to REDD may be limited by their low level of education. This may require a special kind of institutional arrangement that will make sure the interests of women are taken on board and mainstreamed in the REDD institutional framework.

#### *Economic activities*

An examination of the economic activities revealed that

most of the respondents were farmers (84.3%). A comparison across gender showed that females engaged in fewer economic activities than males. In addition to agriculture, females only had their own business (17%), whereas males were engaged in other activities like their own business (7.3%), employment (4.5%), timber (0.85%) and unpaid family helper (0.4%). This suggests that women depend more on the forest for subsistence while men benefit from the forest for both subsistence and commercial gain, such as selling timber, making charcoal and logging.

### **The level of dependency on the forest for livelihoods by gender**

#### ***Housing quality and building materials***

Generally, both male and female respondents greatly depend on natural resources. Most of the respondents' houses were made of poles and mud and roofed with grasses and leaves. A comparison between men and women revealed that female respondents' houses to a great extent were of inferior quality compared with those of men. For example, 32.4% of male respondents had houses with walls made of burnt bricks and 38.9% had iron-roofed houses, compared with 17 and 31.9% for women, respectively. Judging by the quality of the houses it would appear that female-headed households were poorer than male-headed households. This supports the earlier cited literature by UNDP (2011) in that forests contribute to the livelihoods of many of the people living in extreme poverty, and the large majority of these poor (over 70%) are women.

#### ***Land ownership and tenure***

Land is probably the most important resource for the livelihoods of both men and women in the developing world. People use land to cultivate crops, extract forest resources and engage in mining activities. In this study, access to land did not seem to be a problem for men but it was quite limited for women. Although the results show that 81.3% of the respondents owned land, in fact the men owned almost twice the amount of that owned by females. In this situation it would be difficult for women to allocate land for REDD. In contrast men would be able to allocate a considerable portion of land and still be engaged in agriculture and other activities on the remaining land.

The results of an investigation into the mechanisms for acquiring land show that most of the respondents had inherited land from their parents (49%). However, a considerable number of respondents also indicated that they had acquired land through allocation to them by the village council (12.8%). However, there was 14.6% who

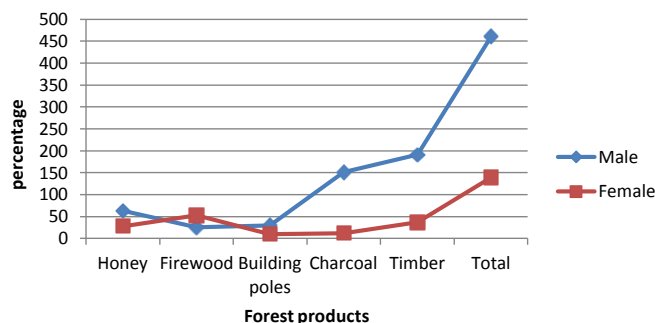
owned land illegally, most of which had likely come from forest land.

Regarding land tenure, most of the respondents owned land through customary legal rights. However, a considerable number of women respondents (19.1%) also owned land through sales agreements. Women are commonly without any formal rights to land or forests (CIFOR, 2012). This is not surprising as most Tanzanian tribes are not in favour of women owning land through inheritance because they will get married and belong to a different clan. It is only through market transactions that women have started owning land. Also this cultural hindrance is gradually diminishing, thanks to education, religious teachings and raising awareness on gender equality.

Despite the recognition of customary ownership of land by Tanzania's legal system, this tenure is still facing enormous challenges. For example, most financial institutions do not recognize customary-owned land for collateral. Also little efforts have been made by the government to conduct surveys and issue certificates for such tenure. There is also a claim that most of the customary/public land is easily acquired by the Tanzania Investment Centre for land banks. It is not clear how the REDD programmes will address this barrier. There is a concern that the REDD programmes may also lead to the taking of land/forest resources from communities in the name of investment, which will affect the livelihoods of forest-dependent communities. While a lot of opportunities for rural development might come from REDD, it is not clear how they will be realized and by whom. Women are commonly without any formal rights to land or forests and therefore have little say in relation to forest governance (CIFOR, 2012).

#### ***Income from agricultural commodities***

The income from agriculture is quite significant for all men and women respondents although in both categories only a few respondents were able to harvest enough for domestic use and to have a surplus for sale. A comparison between male and female respondents shows that from all the crops sold, males received relatively more income than females (Table 1). There was a significance difference in the income earned from beans, sorghum, sunflower and pigeon peas ( $P < 0.01$ ) and paddy ( $P < 0.05$ ) between men and women, with men having a consistently higher income than women. This is not surprising as most female-headed households are constrained by a number of factors, such as multiple responsibilities, poverty and insufficient family labour. They also own a limited number of productive resources. Women also have less access to markets than men as they lack the transport and do not have enough information. Nevertheless, there was no significance difference in the income earned from simsim, although



**Figure 2.** Income from forest resources by gender (%).

female respondents received a slightly higher income than men (Table 1).

### **Income from natural resources**

An attempt to quantify income from forest resources shows that male respondents receive significant earnings from forest resources of about T.shs 450,000 per annum. This is much higher than those of female respondents, who earned only about T.shs 140,000 (Figure 2). As pointed out earlier, men benefit from forest resources both for subsistence and commercial ventures, while women benefit mainly for subsistence. REDD could reverse this trend by enabling women to utilize forest resources on a commercial basis as well, such as beekeeping. This would also enhance food security through increased use of forest resources, as women are more responsible for food security than men. Research conducted by Monela et al. (2001) showed that honey, charcoal, fuel wood and wild fruit contribute to 58% of farmers' cash incomes in six villages in Dodoma region as well as in Morogoro and Kilosa Districts. The authors also reported that honey alone accounted for a third of all cash incomes in those villages (WRM's bulletin, 2000). Studies suggest that women are the primary users and managers of forest resources and have high dependence on non-timber forest products (NTFPs) for their livelihoods, (Coad et al., 2008).

### **Participation in environmental groups**

Participating in environmental groups by both genders is very important for benefit sharing, decision making and for the sustainability of forest resources. The respondents were asked to indicate the kind of groups they are participating in. Generally, participation was low by both male (27.9%) and female (29.5%) respondents. A high proportion of male respondents were involved in groups related to MJUMITA (Mungano wa Jumua za wakulima literally meaning smallholder farmers association) and *Hifadhi mazingira* (Protect the environment), while

**Table 2.** Awareness of REDD programmes.

Characteristic	Male n = 147	Female n = 47	Total N = 294
Is aware with REDD	86.6	70.2	84.0
<b>Meaning of REDD</b>			
Forest Conservation	38.0	46.8	39.6
Carbon dioxide reduction	9.0	8.3	8.8
Environmental Protection	56.0	63.8	57.2
Tree planting	32.4	42.6	34.0
Improving livelihoods	64.8	38.4	60.4

women were more involved in VICOBA (Village Credit and Saving Banks) and tree planting. The unsatisfactory participation of communities in groups may affect the implementation of the REDD programmes and hence the sharing of benefits by REDD participants. There is a need to sensitize communities to form groups for different purposes, such as conservation, obtaining loans, bargaining power, education and so forth.

### **Awareness, expectations and willingness to participate on REDD programmes**

#### **Awareness with REDD programmes**

Interestingly there was high level of awareness of REDD by both male (86.6%) and female (70.2%) respondents. When asked to mention the meaning of REDD most of them answered correctly by saying that REDD means forest conservation (39.6%), environmental protection (57.2%), and tree planting (34%). Also as many as 60.4% of all of the respondents understand that REDD was linked with improving livelihoods (Table 2). This is good information for REDD programmes in that they should aim for both conservation and improving the livelihoods of forest-dependent communities. In other words, conservation should go hand-in-hand with people's expectations of improving their livelihoods. Failure to do so may lead to REDD goals not being realized.

#### **Willingness to participate in the REDD programmes and incentives preferred by gender**

An assessment of the respondents' willingness to participate in REDD programmes shows that as many as 84.7% were willing to participate. However, according to the respondents this would only take place under the conditions indicated in Table 3. The most important requirement of both men and female respondents was that REDD must lead to improved socio-economic services (84.7%). However, male respondents were more interested in how long they would have to wait before receiving the benefit (55.6%), while women were more

**Table 3.** Willingness to participate in REDD programmes and incentive package proposed.

Characteristic	Male (n = 147)	Female (n = 47)	Total (N = 294)
Yes, I would like to participate	86.6	74.5	84.7
<b>Incentives to participate</b>			
Enhance socio-economic services	69.2	72.3	69.8
Sustainability of receiving REDD benefits	46.6	59.6	48.7
The time of waiting before reaping REDD benefits	55.6	38.5	52.4
If agricultural productivity is improved	40.0	62.0	44.1
Provide improved inputs example drought-resistant crops	32.0	31.9	32.0
Provide alternative livelihoods	69.2	81.1	71.4
Facilitate use of efficient energy	21.9	29.8	23.4
Communities should be the managers of REDD projects	51.8	46.8	50.9

concerned about the sustainability of their REDD benefits (59.2%). Women were also more interested with REDD to enhance alternative livelihoods (81.1%) compared to men (69.2%). The kind of livelihoods prefer by women was access to credits, value adding of farm commodities and enhance market accessibility through information availability. There was more or less equal demand by both male and female respondents that they should manage the REDD programmes, with 50.9% of the respondents wanting the communities themselves to be the managers of the REDD implementation programmes. Other requirements of the communities as a condition for being involved in REDD programmes were that REDD should improve agricultural productivity (44.1%), provide improved seeds including drought-resistant seeds (32.0%) and that they should be facilitated to adopt energy-efficient technology (23.4%).

### Linking REDD institutional framework and gender-based preferences

The above findings suggest that both male and females are in favour of the REDD initiative but only if the REDD programmes address their incentive preferences. The findings also reveal similarities as well as differences in REDD incentive preferences between males and females. This suggests that the REDD institutional framework must accommodate the interests of both males and females. More importantly the REDD institutional framework should emphasise the "action effect" and not simply the "representation effect," (Agrawal, 2006), as failure to do so may affect adversely the livelihoods of the communities. Over the past 25 years, developing countries have transitioned toward decentralized forest management that gives local actors increased rights and responsibilities (Phelps et al., 2010). While REDD's initiating new approaches to mitigating terrestrial emissions associated with climate change, it is important that it also improves communities' livelihood focusing on gender. Experience shows that gender

issues have hardly figured in the international policy discourse (Terry, 2009).

In Tanzania, the Office of the Vice President is responsible for all climate change issues including adaptation and mitigation. There is also the National Climate Change Steering Committee (NCCSC) and the National Climate Change Technical Committee (NCCTC) to oversee and guide implementation of REDD activities in the country. The Forestry and Beekeeping Division in the Ministry of Natural Resources and Tourism will have an important role in implementing, supervising and operationalizing the REDD initiative based on existing forestry initiatives. It is said that stakeholder groups at all levels will be involved in the REDD process and that communities and people in forests will be involved in a positive and mutually beneficial type of management. However, it is not clear how the REDD governance will mainstream gender issues. Although Tanzania's policy guidelines stipulate that at least 33% or one third of any governance/decision-making institution should involve women, the implementation of this requirement has remained a serious challenge at all levels. Where representation is decided through voting, women have failed to secure the required number of votes, partly because of masculine traditions in many African countries. Women are seen by men as being inferior and incapable, although where they have been given a chance many of them have performed wonders. REDD programmes may need innovative approaches to make sure that gender issues are mainstreamed and addressed. As noted earlier the male-female balance in forest management groups influences forest governance (Agrawal, 2009).

The FGD and the literature showed that the policy and legal framework for forest management in Tanzania is based on the Village Land Act No. 5 (1999), the Local Government Act No.7 (1982) and the Forest Act No. 14 (2002). Together they provide the legal basis for villages to own and manage forest resources on village land (Blomley and Iddi, 2009). The forestry sector's provisions for PFM build on Tanzania's structures of local



government and customary village-based land tenure (Shivji, 2002).

The key institutions for forest management at local level in Tanzania are the Village Council, Village Assembly, and the Village Natural Resource Committee. The basic management tools are the village by-laws and land use plans, which are legally grounded in the Local Government Act and Village Land Act, respectively. In all the study villages there were Village Environmental Management Committees (VNMC) operating under the Village Councils.

The committees were composed of 10 to 17 members, with both male and female members, but in almost all villages the women were fewer in number than men, with each sub-village contributing at least one member to the committee. The VNMC members are selected by sub-villages and approved by the Village Assembly. They serve for a period of five years.

The committees have several responsibilities, including demarcating the forest area, protecting the forest from illegal uses in collaboration with the village government, documentation and keeping important records, regular monitoring of the forest resources, supervising patrols in the forest, and ensuring the sustainable utilization of forest resources.

Results from this study show that, although several stakeholder groups existed to carry out different forest-related activities in the villages under study, few community members benefited directly from their activities. Most respondents (and most were women) said that they had never participated in the activities of the so-called forest conservation groups.

REDD programmes need to be based on a more sophisticated understanding of gender relations and a wider examination of the gendered context of JFM processes (Locke, 1999).

Another institutional weakness pointed out by various FGD members, and observed by other commentators (Blomley and Iddi, 2009), was poor information flow between the VNRC that bore the overall management responsibilities, the village government and the wider community. In a high proportion of the villages visited there were neither minutes of committee meetings nor any records of activities by the committees that could be provided as evidence of accountability and transparency, which are the hallmark of good governance.

There was also indications of appropriation of forest management powers and benefits by the VNRC and/or village government at the expense of the many members of the villages who had always been highly dependent on the open-access harvesting of charcoal, fuel wood, building poles, et cetera (Blomley and Iddi, 2009). Mwakaje et al. (2010) also revealed that, in particular, the apparent lack of accountability and transparency consolidated the position of richer and more influential members of the communities, resulting in the increased marginalization of poorer members of these communities,

who were mainly women and children. It is hoped that REDD programmes will come up with a more efficient institutional framework for achieving both forest conservation and equitable gender-based development. Without equitable representation and the mainstreaming of gender issues, the sustainability of REDD, people's livelihoods and rural development will be questionable.

It is important to note that women who head households are worthy of special attention because they are triply disadvantaged, in that they experience the burdens of poverty, gender discrimination and the absence of support as heads of households (Buvini and Gupta, 1997). Given the complex and often unpredictable drivers of deforestation in developing countries, risk reduction to this group is therefore of paramount importance (Peskett and Harkin, 2007).

## CONCLUSION AND RECOMMENDATIONS

The general objective of the study was to come with an understanding of the likely impacts of REDD on forest-dependent livelihoods by gender in Tanzania, using the case of Kilosa District. Specifically the study sought to address the following objectives:

1. To investigate the level of dependency on the forest for livelihoods in Kilosa District by gender,
2. To find out the gender-based perceptions and expectations of REDD programmes,
3. To analyse the current forest management institutional frameworks in Tanzania and the implication on REDD programmes.

### Level of dependency on the forest for livelihoods

The findings show that communities depend heavily on forest resources for their livelihoods. Nevertheless, they want to support the REDD programmes in the anticipation that REDD will improve socio-economic services.

### Gender-based awareness, perceptions and expectations of REDD programmes

The comparison between men and women suggests that the awareness of REDD is high in the study communities as well as the perception (meaning). However, there was gender differences with regard to expectations where male respondents were more interested in knowing how long they would have to wait before they would start benefiting from the REDD programmes, while women were more concerned about the sustainability of their benefits.

## Current forest management institutional frameworks in Tanzania and the implication on REDD programmes

The current institutional framework for forest resource management is characterised by a lot of governance challenges and inefficiency as well as biasness against women. The review of the other ongoing forest management such as PFM and JFM reveal that the governance has been poor and the representation of women in these initiatives has remained low due to mainly cultural norms and traditions which hardly accept women as leaders. The study has also seen women to lack land ownership and the situation might be worse for widows.

However, communities in this study have indicated a preference to fully participating in the management of REDD programmes to be implemented in their locality. It is therefore concluded that for REDD programmes to achieve their objectives they will need to develop an institutional framework that will mainstream gender issues. This is important as men and women have different needs and different approaches to the forest for their livelihoods. While a high proportion of men benefit from the forest both commercially and for subsistence, women mainly benefit for subsistence and they are the managers of food security in the household. Also a high proportion of women do not own land, they are poorer and generally have a lower level of education than men. These challenges must be worked on and internalised by REDD programmes to make sure that REDD equally benefits all members of the communities where REDD programmes are being implemented.

It is generally recommended that for REDD programmes to be successful and sustainable gender issues must be identified and mainstreamed, expectations of the communities should be fulfilled and the REDD institutional framework must be gender equitable in terms of governance.

## REFERENCES

- Agarwal B (2001). Participatory Exclusions, Community Forestry, and Gender: An Analysis for South Asia and a Conceptual Framework. *World Develop.* 29(10):1623-1648.
- Agrawal A (2006). Decentralization and Environmental Conservation: Gender Effects from. Participation in Joint Forest Management. CAPRI Working Paper No. 53.
- Agarwal B (2009). Gender and forest conservation: The impact of women's participation in community forest governance. *Ecol. Econom.* 68(11):2785-2799.
- Blomley T, Iddi S (2009). Participatory Forest Management in Tanzania: 1993 – 2009 Lessons learned and experiences to date.
- Buvini CM, Gupta GR (1997). Female-Headed households, Female Maintained households and Female Maintained Families. Are they worth targeting to reduce poverty in Developing Countries? *Econom. Develop. Cultural Chang.* 45(2):259-280.
- Burgess ND, Bahane B, Clairs T, Danielsen F, Dalsgaard S, Funder M, Hagelberg N, Harrison P, Haule C, Kabalimu K, Kilahama F, Kilawe E, Lewis SL, Lovett JC, Lyatuu G, Marshall AR, Meshack C, Miles L, Milledge SAH, Munishi PKT, Nashanda E, Shirima D, Swetnam RD, Willcock S, Williams A, Zahabu E (2010). Getting ready for REDD+ in Tanzania: a case study of progress and challenges. *Oryx* 44(03):339-351.
- CIFOR (2012). Forests, Gender, Property Rights and Access. [http://www.theredddesk.org/resources/reports/forests\\_gender\\_property\\_rights\\_and\\_access](http://www.theredddesk.org/resources/reports/forests_gender_property_rights_and_access)
- Coad L, Campbell A, Miles L, Humphries K (2008): The Costs and Benefits of Forest Protected Areas for Local Livelihoods: a review of the current literature. Working Paper, revised 21st May 2008. UNEP-WCMC.
- Evans M, Hastings N, Peacock B (2000). *Statistical Distributions*, 3rd ed. New York: Wiley.
- Curri van DB (2012). Sampling Frame. <http://srmo.sagepub.com/view/the-sage-encyclopedia-of-social-science-research-methods/n884.xml>.
- Danton F (2002). Climate change vulnerability, impacts, and adaptation: Why does Gender matter? *Gender Develop.* 10(2).
- Gausset Q, Lund JF, Theilade I, Nathan I, Hansen H, Mugasha AG, Ngaga Y, Andersen SK, Nielsen ST (2007). Why Combine Private and Communal Tree Management? A Case-Study Based in Majawanga (Gairo, Tanzania). *J. Trans-disciplinary Environ. Stud.* 6(1).
- Gurung JD (2009). REDD: putting women at risk or providing opportunities? <http://www.iucn.org/about/work/programmes/gender/?3958/REDD-putting-women-at-risk-or-providing-opportunities>.
- Gurung J (2011). Assessment of Gender and REDD in Asia. Results of a USAID study. <http://www.scribd.com/doc/51782534/Assessment-of-Gender-and-REDD-in-Asia-Results-of-a-USAID-Study>.
- Harris P (2006). Socio-Economic Study of Forest-Adjacent Communities from Nyanganje Forest to Udzungwa Scarp: A Potential Wildlife Corridor. Incorporating Livelihood Assessments and Options for Future Management of Udzungwa Forests. WWF-Tanzania.
- Locke C (1999). Constructing a Gender Policy for Joint Forest Management in India: *Develop. Change* 30(2):265-285.
- Monela GC, Kajembe GC, Kaoneka ARS, Kowero G (2001). Household livelihood strategies in the Miombo woodlands of Tanzania: Emerging trends. *Tanzania J. Forest. Nat.* 73:17-33.
- MJUMITA (2012). Making REDD Work in Kilosa District, Tanzania. <http://www.forestcarbonportal.com/project/marking-redd-work-kilosa-district-Tanzania>.
- Mwakaje AG, Kahyarara G, Mung'ong'o CG, Kauzen A (2010). The role of reducing emissions from deforestation and degradation (REDD) for rural development in Tanzania: the case of Babati, Hai and Kilosa districts. A Consultancy Report submitted to the REDD Task Force Tanzania.
- Peskett L, Harkin Z (2007). Risk and responsibility in Reduced Emissions from Deforestation and Degradation. *Advancing knowledge, shaping policy and inspiring practice.* ODI Forestry Briefings 15.
- Peskett L, Huberman D, Bowen-Jones E, Edwards G, Brown J (2008). Making REDD work for the poor: Advancing knowledge, shaping policy and inspiring practice: <http://www.odi.org.uk/resources/details.asp?id=2580&title=making-redd-work-poor> accessed on 14th May 2012.
- Phelps J, Edward LW, Agrawal A (2010). Does REDD Threaten to Recentralize Forest Governance? *Science* 328(5976):312-313.
- Shivji I (2002). Village governance and common pool resources in Tanzania. The implication of Common Pool Resource Knowledge in India, Tanzania and Zimbabwe. DFID, UK.
- Terry G (2009). No climate justice without gender justice: an overview of the issues. *Gender Develop.* 17(1):5-18.
- UNDP (2011). UNDP International Policy Centre for Inclusive Growth Poverty Practice, Bureau for Development Policy, UNDP. Poverty in Focus. <http://www.slideshare.net/ipcig/dimensions-of-inclusive-development-growth-gender-poverty-and-the-environment>
- UN-REDD (2009). About REDD+ <http://www.un-redd.org/AboutREDD/tabid/582/Default.aspx>
- UN-REDD (2010). Frequently Asked Questions and Answers– The UN-REDD Programme and REDD. <http://www.unep.org/forests/Portals/142/docs/UN-REDD%20FAQs%20%5B11.10%5D.pdf>. Accessed in July 2012

UN-REDD (2010). UN-REDD Newsletter. 14.  
URT (2002). Population and housing census general report. Central Census Office, National Bureau of Statistics, President's Office Planning and Privatization. Dar es Salaam, Tanzania, Government Printer.  
URT (2010). Kilosa District Annual Report. District Executive Director Office. Unpublished.

WRFM (2012). World Rainforest movement. Climate Change. GenderCC Contribution to the UNFCCC on REDD. [http://www.wrm.org.uy/actors/CCC/cop14/GenderCC\\_on\\_REDD.html](http://www.wrm.org.uy/actors/CCC/cop14/GenderCC_on_REDD.html)