

Gender Differences in On-farm Tree Planting in Ghana's high forest zone.



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Abstract

Ghana's deforestation rate has increased significantly and this reduction of forest resources has had major effects on the people whose livelihoods partly depend on forest resources and has directly increased pressure on forest reserves. Thus, forest conservation in Ghana is of great importance and sustainable forest management has become a pressing issue. In 2001 the government of Ghana launched the National Forest Plantation Development Programme (NFPDP). One of its components, on-farm tree planting, aims to replenish degraded forests by stimulating afforestation in off-reserve areas with the effect of reducing the pressure on the reserves. Globally the idea of environmental governance has shifted towards an engagement of local people having access and control over the decision-making process of sustainability. NFPDP encourages smaller-based forest rehabilitation as an innovative response for meeting the combined goals of livelihood improvement and sustainable forest management.

Ardayio-Schandorf 2007, Gurung and Quesada 2009 and McShea 2009 have argued that forest governance in Ghana is still dominated by men. A failure to pay attention to gender reduces development effectiveness and as stressed by Meinzen-Dick *et al.* (2010:1) 'We will not be able to meet the food needs of the future population or ensure that productivity translates into improved welfare for the poor unless we take gender into account more seriously in agricultural research and development.' An analysis of gender is, therefore, central to an understanding of the ways in which resource users and managers relate to resources and to each other.

This study investigates gender differences in participation in on-farm tree planting in Ghana's high forest zone. It explores the governance factors which have determined gender differences and how these differences between men and women in tree planting can be explained in terms of a gender order that exists within society. It aims to show how gender is relevant and why a gender strategy is necessary in environmental governance and particularly in the participatory process, not only for reasons of social justice but also as a way of improving the quality of the decision-making process and thus strengthening the path to sustainability.

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List of acronyms

Ac Acre

CIA Central Intelligence Agency

FAO Food and Agriculture Organization (of the United Nations)

FC Forest Commission

FD Forest District

FORIG Forest Research Institute of Ghana

FSD Forest Service Division

ITTO International Timber Organisation

KNUST Kwame Nkrumah University of Science and Technology

LC Land Category

NFPDP National Forest Plantation Development Programme

NGO Non Governmental Organisation

PADO Private Afforestation Developers Organisation

TC Tree Category

UN United Nations

UNCED United Nations Conference on Environment and Development

UNDP United Nations Development Programme

1 Introduction

This study is about gender aspects in on-farm tree planting¹ in Ghana's high forest zone. According to FAO (2003:9) gender refers to the social, economic and cultural roles and relations between men and women including their different responsibilities in a given culture or location. It also 'recognises their equal potential, while allowing for differences between the genders' (Handrahan 1999:7). According to Handrahan 'gender theory reaches beyond the inclusion of women and the examination of men in the light of feminism. Thus, gender theory is the sum total of three aspects that occur when women are brought into research projects, 1) women's lives, 2) men's lives and 3) the interactions and the products of male/female, feminine/masculine convergence, this is the link between feminist and gender research'(1999:8). Within this line of thought this study will use the Gender and Development approach 'which involves raising awareness about prejudice, discrimination, inequalities and subordination mechanisms with a view to combating them' (FAO 2010:19). This approach looks beyond efficiency and economic utility to long-term sustainability (*ibid*).

This chapter will first introduce the research topic and its relevance. It will then present the outlines of the thesis, followed by the research objectives and questions, the study area and thesis setup.

1.1 Problem Statement

The importance of forests and forest resources to rural livelihoods, as well as to conservation and sustainable development, is well recognised (Mai *et al.* 2011; Sunderlin *et al.* 2005). Woodlands as well as planted trees on farms are a fundamental part of rural livelihoods in Sub-Saharan Africa by generating wood-fuel and building materials and natural resources (water, soils, timber and non-timber forest products) and feature highly in many African economies (Kaimowitz 2003). This also applies to Ghana (Wiggins *et al.* 2004 and Appiah *et al.* 2009). Statistics, however, show that the forest resource is shrinking (Appiah *et al.* 2009) and the FAO (2010) estimates Ghana's annual deforestation rate at 2.1% per year (Insaído *et al.* in press). Wiggins *et al.* (2004) state that this has been the effect of population growth – during the 20th century the population of southern Ghana increased by as much as 10 times – accompanied by clearing of the forest to grow food crops and to plant commercial groves of cocoa and oil palm and clearing for the

¹ A more appropriate term would be tree growing as the activity involves more than tree planting alone, but this terminology follows Ghanaian jargon. In this thesis on-farm tree planting and tree growing are used interchangeably.

extraction of timber. Furthermore, people in off-reserve areas are heavily dependent on poverty driven agriculture, with a lack of alternative rural income other than farming (Appiah *et al.* 2009). According to the World Bank (2006) approximately 30 per cent of the Ghanaian population live on less than one dollar per day and between 60% and 90% of the labour force is in the rural sector (Counsell 2009). The reduction of forest resources has had major effects on the people whose livelihoods partly depend on these resources and directly increases pressure on forest reserves. Thus, forest conservation in Ghana is of great importance and sustainable forest management has become a pressing issue. As argued by Lamb *et al.* (2005: 1630), 'the present scale of land degradation is such that it will only be overcome if large numbers of individual landowners or land managers become involved in reforestation.'

Against this background, there is increasing attention in Ghana (although not a new approach) towards smallholder-based forest rehabilitation as an innovative response for meeting the combined goals of livelihood improvement and sustainable forest management (FC 2008). On-farm tree planting in Ghana was launched in 2001, as part of the National Forest Plantation Development Programme (NFPDP) (Insaadoo *et al.* 2012). However, by then, many people had already invested in on-farm tree planting in the high forest zone from the mid-1990s (Insaadoo *et al.* in 2012). The aim of the NFPDP was to replenish degraded forests by stimulating reforestation of degraded forest reserves and afforestation (planting new trees where there hadn't been trees before) in off-reserve areas². In off-reserve areas this is done by stimulating on-farm tree planting in pure stands (small forest plantations) or integrating trees within existing farming systems (e.g. cocoa farms or oil palm plantations) where trees are grown together with crops or as boundary planting on the edges of cultivated land in order to reduce pressure on forests and avoid further degradation (Blay *et al.* 2008). However, as argued by Kaimowitz (2003), national poverty reduction strategies and most government policies have failed to recognise the level of importance tree resources have for rural livelihoods. Wiggins *et al.* (2004: 1939) adds to this that 'environmental policies in Ghana have had little impact on those living at the forest margins since they are only sporadically applied, if at all'. This dilemma, together with the increasing deforestation rate, leads one to question the present ability of NFPDP to implement successful on-farm tree planting schemes.

This study proposes that any environment and development system must be gender-responsive by addressing women as well as men, both as clients and actors in the progress of environmental governance. As stressed by Meinzen-Dick *et al.* (2010:1): 'Paying attention to gender

² Ghana's forest resources are under different management regimes, with the main distinction being between forest reserves and off-reserve areas. Forest reserves can be under a protected, production or plantation regime (Derkyi 2012), whereas forest resources in off-reserve areas are mainly naturally generated trees on farmland especially on cocoa farms and fallows (Hansen and Treue 2008).

is not ideology but a matter of development effectiveness. We will not be able to meet the food needs of the future population or ensure that productivity translates into improved welfare for the poor unless we take gender into account more seriously in agricultural research and development.’ ‘Successful development interventions are transformative, whether through creating opportunities, new commodities and services or changing the way people do things and the way they perceive and react to change’ Meinzen-Dick *et al.* (2010:1). Gender equality has great potential to enhance productivity by using the skills and talents of men and women more fully. Empowering women as economic, political and social actors, can change policy choices and make institutions more representative of a range of voices in decision making (World Bank 2011: 1).

Several studies have been carried out on factors determining adoption of tree planting practices in Ghana. These showed that important factors include tenure security, communication, financial support, multiple land use, benefit sharing and access to markets for plantation products (Appiah 2001, Zhang and Aboagye-Owiredu 2007). In these studies, gender differences have not received attention, whereas research results by Insaadoo *et al.* (2012) suggest that on-farm tree planting is gender-biased with much larger involvement by men than women. This corresponds with evidence that sustainable forest management tends to exclude women (Ardayfio-Schandorf 2007, Gurung and Quesada 2009 and McShea 2009). At the same time, gender equity has been noted within the modified taungya system, which is a community-based reforestation scheme carried out in Ghana’s degraded forest reserves (Abugre *et al.* 2010, Insaadoo *et al.* in press). Within this context of seemingly contrasting evidence, this study aims to identify gender-based barriers to on-farm tree-planting schemes in the off-reserve areas of Ghana’s high forest zone, arguing that sustainable tree management can only be achieved if both men and women adopt active roles within it.

1.2 Research Objectives and Questions

In addition to identifying gender-based barriers to on-farm tree planting, the purpose of this research is to generate awareness of the importance in having a gender-responsive on-farm tree planting approach in Ghana’s high forest zone. This focus does not presuppose that the role of women is the only or most important consideration in forest management. Nor does it suggest that all forestry issues are segregated by gender. This research simply stresses that there is a gender imbalance in on-farm tree planting and that a management plan which incorporates a gender approach that includes both men and women can lead to a deeper understanding of the complexity of the constraints and opportunities in on-farm tree planting for small-holder farmers. It seeks to provide recommendations for a gender-aware approach so as to increase the rate of tree planting while improving the welfare of both male and female farmers. Of course many differences exist

between continents, countries and regions and even between cities in the same country or province and it is clear that there is not, nor can there be, a single model of gender mainstreaming that is valid for all cases. Nevertheless, although these findings are taken from Ghana they can be used and adapted to address gender and on-farm tree planting within other contexts.

The research however does not imply that it has all the answers as it acknowledges that it is difficult to understand totally the complexity of the social, environmental and economic aspects of gender and the environment and recognises that most cases of environmental governance entail a combination of shortcomings and successes. There is not one single cause but diverse chains of causality in which multiple factors interact for variable outcomes in tree management (Mai *et al.* 2011). Thus there are no guaranteed calamity-proof means of implementing on-farm tree planting and governing the environment successfully. This research simply suggests that the gap between interests and outcomes may arise because the forestry sector is subject to a 'gender order' which privileges men's contribution to forestry, constrains women's participation and ultimately reduces the capacity of the forestry sector to achieve inclusive forestry management as a key component of social sustainability (Varghese and Reed 2012).

Main Question:

What factors explain differences in gender participation in on-farm tree planting schemes in the off-reserve areas of Ghana's high forest zone?

Sub-questions:

1. How are on-farm tree planting and gender governed in terms of the overall policy framework in Ghana? (Chapter 4)
2. What gender differences can be observed regarding participation in decision-making, implementation and benefit sharing in on-farm tree planting schemes? (Chapter 5)
3. What governance factors (in terms of tenure security, benefit arrangements and external and financial support) explain gender differences in on-farm tree planting? (Chapter 6)
4. How can gender differences in participation in on-farm tree planting be explained in terms of gender order? (Chapter 7)
5. What are the implications of the research findings for the on-farm tree planting schemes? (Chapter 8)

1.3 Justification

A gender approach can help one to understand how gender and diversity shape constraints, opportunities, interests and needs which can offer a greater insight into how to involve local people in a sustainable forest management process (McDougall 2000) and in afforestation and reforestation schemes for that matter. The aim of this study is to show how gender is relevant and why a gender strategy is generally necessary in environmental governance and particularly in the participatory process, not only for reasons of social justice but also as a way to improve the quality of the decision-making process and thus strengthening the path to sustainability. As stressed by Thomas-Slayer and Sodikoff (2001:45) 'women as well as men are key resource users and managers and have different roles, responsibilities, opportunities and constraints in managing natural resources, both within the household and in the community'. As highlighted by Insaiddoo *et al.* (in press) 'tree planting is a relatively new venture for smallholders in Ghana and integrating it into their farming system requires an adaptive approach to co-management, with mechanisms in place that ensure feedback, joint learning and building of mutual support among the partners'. An analysis of gender is therefore central to an understanding of the ways in which resource users and managers relate to resources and to each other. For much of history gender issues were understood as being women's issues and therefore assumed to be a women's job with no room for men. By excluding women opportunities are missed for the kind of transformative development processes that can address issues of power and powerlessness. This concept lies at the heart of the Gender and Development approach (Cornwall 2003).

It is, therefore, important to understand this complexity and by acknowledging how different groups of men and women use and manage tree plantations it should then be possible to establish a gender-aware tree planting venture which would lead to greater participation. For this to happen there needs to be an acceptance that there are differences in the experiences and interpretation of reality between men and women (Bhatta 2001). Reeves and Baden (2000:2) have defined gender analysis as the 'systematic gathering and examination of information on gender differences and social relations in order to identify, understand and redress inequalities based on gender'. An examination of gender differences is critical for a complete understanding of factors affecting both men and women's participation rate. It can reveal inequalities and the interactions between tree planting and society. The utilisation of local knowledge (both men's and women's) is undeniably one of the most important enabling conditions in creating agricultural sustainability and advancing local knowledge (Pretty 1997; McShea 2009). Permitting the utilisation and development of natural resources in a way compatible with conservation objectives will improve economic potential for the local women and men (Ongugo *et al.*, 2002). Therefore, as stated by Mai *et al.* (2011), research

projects which adopt gender analysis techniques help to enhance the prospects for sustainable tree planting approaches, ensure an equitable distribution of benefits and enhance the efficiency of policy implementation. It should be borne in mind that gender theory is culturally constructed; it is not static, but dynamic across cultures, generations and between members of the same sex. Gender is not about men and women, but seeks to identify the cultural relationship between them. Gender analysis requires spotlighting factors such as class, race, ethnicity, religion and age (as women and men are not homogenous) within the overall social context (Gurung and Quesada 2009). Bonnard and Scherr (1994) stress that gender differences exist in tree management. A number of studies they listed found that women preferred naturally growing trees for fodder and fuel while men favoured income-producing species. This emphasises that men and women hold different needs and thus have different knowledge of tree management. They also observe that there are other distinguishing factors among farmers other than gender. They state that the sources of variation in agroforestry which may be equally or more important than gender include farm size, marital status, age, life cycle stage, labour availability, access to off-farm tree product supplies and markets, and the dependency ratio. However, one could equally observe that all these factors may also be observed within a gender analysis and by using that perspective it is possible to discern differences between men and women and between tree-growers and non tree-growers and understand how these factors either limit or increase their ability to plant trees.

1.4 Study area

Ghana is situated in West Africa on the Gulf of Guinea and shares borders with Côte d'Ivoire to the West, Burkina Faso to the North and Togo to the East. The country is divided into 10 administrative regions which are further subdivided into a total of 170 districts, and has a population of 24.2 million which is expected to grow to 36.5 million in 2030 (UNDP 2011). It is known as one of the more stable nations in the region, having a constitutional democracy and good foreign relations being a member of the United Nations, World Trade Organisation, Organisation of African Unity and African Union and ranks 65th most stable country in 2012 according to the failed states ranking (The Fund for Peace 2012). It also has a growing economy which has been strengthened by a quarter century of relatively sound management, a competitive business environment and sustained reductions in poverty levels leading to an enjoyment of the world's 3rd largest growth rate in 2011 at 13.5% (CIA 2012). According to Tynnela *et al.* (2009), Ghana has one of the stronger economies of sub-Saharan Africa thanks to an array of natural resources and traditional land uses which include small and large-scale farming, forestry, cattle grazing and tree plantations. Agriculture accounts for roughly one-quarter of GDP and employs more than half of the workforce, mainly small landholders.

The recent discoveries of oil off Ghana's coast in 2010 and 2011 further add to the country's economic prospects (African Economic Outlook 2012). However, Ghana still has a low medium human development index, ranking 135 out of 176 (UNDP 2011: 164), with nearly half the population living on less than one dollar per day and between 60% and 90% of the labour force being in the rural sector (Counsell 2009).

Ghana's topography ranges from a narrow grassy plain that stretches inland from the coast, widening in the east (Tearfund 2011). The south and west, known as the high forest zone, encompasses seven forest types ranging from wet evergreen to dry semi-deciduous (Hall & Swaine 1981 cited in Derkyi 2012). To the north of this high forest zone are forested hills (transition zone), beyond which is a dry savannah and open woodland (FCO 2011). The high forest zone is witnessing extensive deforestation and few isolated pockets of untouched forest remain. With the FAO (2010) report estimating Ghana's deforestation rate at 135,395 hectares per annum, caused by widespread exploitation and cultivation from illegal logging, unsustainable agricultural practices such as slash and burn farming (ITTO 2006: 98) and a heavy household reliance on firewood and charcoal for cooking (UNDP 2007: 10), the landscape is characterised by a mosaic of degraded forest and tropical agriculture. With the large percentage of the population in agriculture and the increasing fast rate of growth of the population there is a sustained pressure on forestlands for agricultural purposes (Okali and Fasehun 1997). As a result there is increasing focus on local community-based forest rehabilitation as an innovative response for meeting the conflicting goals of livelihood improvement and sustainable forest management. Such community-based rehabilitation activities have often included the promotion of the establishment of plantations and the introduction of sustainable farming systems where trees are grown together with crops in order to reduce pressure on forests and avoid further degradation of forests (Blay *et al.* 2008).

The fieldwork was carried out in the high forest zone, in the villages of Nkenkaasu and Nikwaakwa within the Offinso District, in the extreme North-Western part of Ashanti Region bordering the transition zone (Figure 1.1). These villages have been selected because they have witnessed more than a decade of on-farm tree planting programmes facilitated both by state and non-state actors (Insaadoo *et al.* in press). The study was part of the collaborative ‘*Governance for sustainable forest-related livelihoods*’ programme between the Amsterdam Institute for Social Science Research (AISSR) at the University of Amsterdam, Tropenbos International Ghana and Kwame Nkrumah University of Science (KNUST) in Kumasi, Ghana.

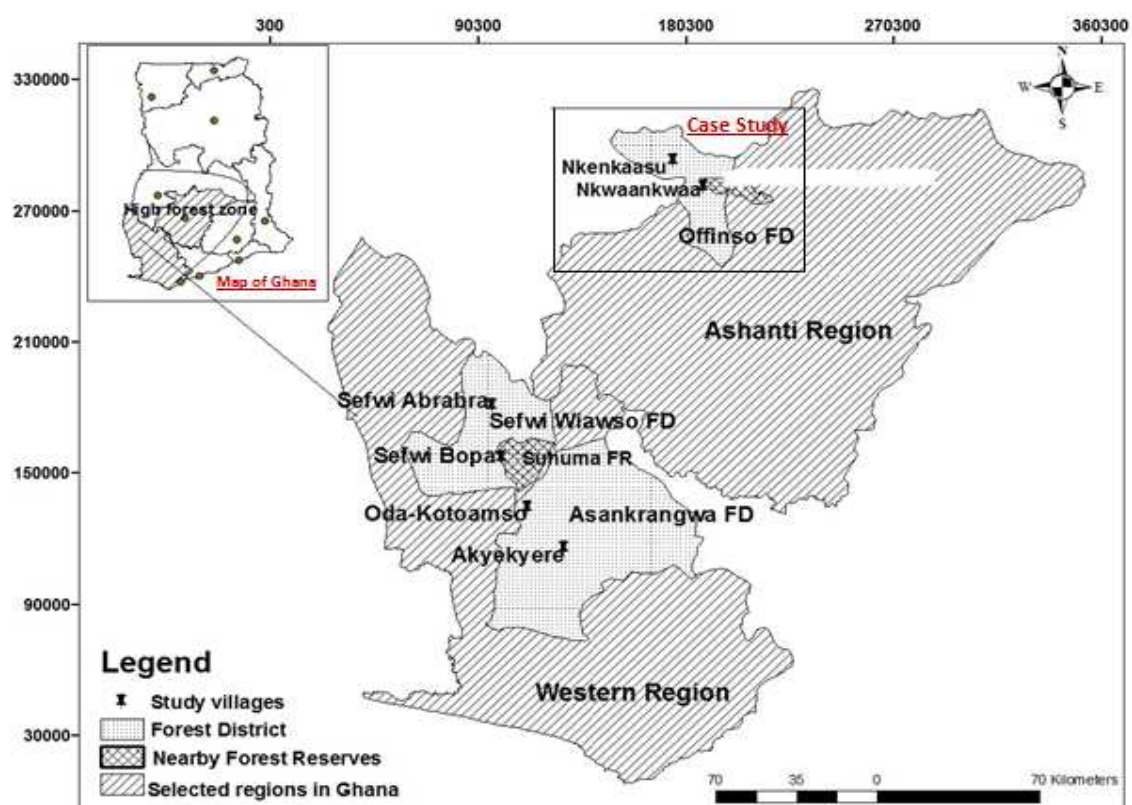


Figure 1.1 Location of the case study villages of Nkenkaasu and Nkwaankwaa (Source: Insaadoo *et al.* in press).

1.5 Thesis outline

The next chapter presents the theoretical framework used to answer the research questions and investigates relevant literature relating to the three main concepts of environmental governance, participation and gender order within the context of on-farm tree planting.

Chapter 3 deals with the methodology of the study. Firstly, it presents the epistemology and ontology position of the study, as it is important to demonstrate the angle of approach which has been taken. Next, it presents the conceptual scheme which demonstrates the relationship between

the main concepts. Following this the operationalisation of the three main concepts is presented, as well as the methods used during the fieldwork. Finally, the limitations of this research and the ethical considerations are addressed.

Chapter 4 is a contextual chapter which acknowledges the overall policy framework of on-farm tree planting and gender respectively, which is an essential basis for the research.

The three chapters thereafter present the research findings. Chapter 5 elaborates on the information presented in Chapter 4 giving meaning to gender considerations in environmental governance in on-farm tree planting. Chapter 6 explores the general factors which can cause gender differences in participation in on-farm tree planting, focusing on tenure security, benefit-sharing arrangements and external support. Studying gender within a culture also requires an examination of how the members of a society acquire and then produce and reproduce symbols, beliefs and patterns of behaviour connected with gender (Gherardi and Poggio 2001:247). Chapter 7, therefore, uses the concept of gender order (Varghese and Reed 2011) to study the symbols, beliefs and patterns of gender behaviour to enable an understanding of how the gender differences presented in Chapter 6 can arise in on-farm tree planting.

The final chapter summarises the research findings against the background of the theoretical framework and assesses the value of the theoretical concepts in answering the research questions. It further presents recommendations for future research relating to gender and forestry as well as recommendations for policy and practice.

2 Theoretical Framework

Conceptually, this research aims to point out the necessity of understanding the link between gender participation environmental governance (with a focus on the Ghanaian reforestation programme) and gender order. This chapter engages in a theoretical examination of these three main concepts.

2.1 Environmental governance and general factors determining adoption rates in on-farm tree planting

The concept of environmental governance relates to the set of regulatory processes, mechanisms and organisations, through which political actors influence environmental actions and outcomes of management (Miller and Edwards, 2001: 5). As stated by Lemos and Agrawal (2006: 298), ‘governance is not the same as government’; it includes the actions of the state as well as other actors such as communities, businesses and NGOs. This study focuses on environmental governance related to Ghana’s reforestation programme (the NFPDP of 2001) with reference to one of its components, namely on-farm tree planting. When reforestation programmes are introduced by outside actors like government agencies, NGOs or businesses, as in Ghana, it is important to consider the factors which determine adoption rates, hence participation in tree planting schemes. Several studies have been carried out in this respect. These showed that important factors determining adoption rates include tenure security and asset holdings (e.g. land, labour and wealth), rights over trees planted, benefits (determined by benefit-sharing arrangements and markets and prices for plantation products) and external support (financial support, communication) (Appiah 2001, Zhang and Aboagye-Owiredu’s 2007, Insaadoo *et al.* in press). As indicated in Chapter 1, gender has not been considered in these studies, despite indications that there is gender bias in tree planting, particularly related to tenure security (tree and land ownership). This gender bias occurs because tree growing requires secure access to land and secure land tenure, which women do often not have or only have through informal control over the land they use (Ardayfio-Schandorf 2007). This severely hinders their ability to rise above subsistence levels (McShea 2009).

In Ghana, there is a dual system of land ownership and control: customary (land held according to customary law) and statutory (public land). Land held under customary law is owned by stools, families or clans and is generally held in trust by the chief, head of family or clan for the benefit of its members (Forest Watch 2006). Land ownership derived from the system of land inheritance takes two forms: patrilineal and matrilineal (Boakye and Baffoe 2006). Under the patrilineal system,

inheritance passes directly down the male line, while in the matrilineal system land passes along the female line (Agyeman 1991 in Boakye and Baffoe 2006). The Offinso District, where this study was carried out, is located in the Ashanti region and is based on the matrilineal system³. In this system 'no customary law distinguishes between men and women in terms of rights to own and use land or trees; although women's rights to inherit land are weak and insecure, once they have acquired land their use of it is not restricted' (Boakye and Baffoe 2006: 12). Brown (1994) puts this weakness down to the economic crisis between 1987 and 1992, which contributed to the limitation of land tenure rights and inheritance rights through the female line. Population pressure, the setting aside of forest land as reserves by government and the continued inheritance of land by males have also made it very difficult for women to acquire land for farming. Ownership of farmland remains extremely restricted to men, which is compounded by the nature of the control exercised by heads of communities, lineages and families who invariably are men (Brown 1994).

Women worldwide continue to be disadvantaged by insecure access and lack of property rights to forest and tree resources (Mwangi *et al.* 2011) and with their continued exclusion from decision-making at household, community and national level (Agarwal 2001 cited in Mwangi *et al.* 2011) they are poorly placed to influence resource allocation or research priorities (Crewe and Harrison 1998 cited in Mwangi *et al.* 2011). Regrettably it is women who disproportionately bear the costs of deforestation while only realising a fraction of the benefits of tree and forest management (Agrawal and Chhatre 2006 cited in Mwangi *et al.* 2011). Several scholars support this argument (Gurung and Quesada 2009, Ardayfio-Schandorf 2007 and McShea 2009) by stating that forest governance in Ghana is still dominated by men, excluding women to a large extent. On the other hand, while referring to East Africa, Rocheleau and Edmunds (1997:1354) stress that although women's rights are tenuous and under pressure, they are still substantial and in some situations they have been able to establish independent wealth in land and trees based on acquisition of private land. This highlights women's ability to be vital clients for on-farm tree planting schemes. Quisumbing *et al.* (2001:177) state that transferring ownership of land to women is unlikely to raise productivity if access to and use of other inputs remain unequal. This suggests that attempts to equalise the land rights of men and women are unlikely to lead to gender equity and improved efficiency and productivity of women farmers unless other constraints faced by women are also addressed. This draws attention to women's position within society, also known as the gender order of society, which will be elaborated in Section 2.3.

³ Matrilineal systems do not necessarily imply female land ownership. In many cases women's usufruct rights have been eroded and inheritance practices have shifted to favour men within the lineage (Baden *et al.* 1994: 32).

For smallholder farmers to be stakeholders within the benefit sharing arrangements of on-farm tree planting they must have secure rights over the ownership and access to tree tenure which is further affected by their land tenure security (Acheampong and Marfo 2011:70). As Zhang and Aboagye-Owiredu's (2007:609) study, within the Asante Bekwai Forest District, found, households holding outright ownership and indigenous land-use rights invested more in their plots than households leasehold tenure arrangements. Furthermore, market incentives and output prices can affect farmers' adoption. As stated by Zhang and Aboagye-Owiredu (2007: 603) farmers are motivated by the potential profits tree planting can bring. Market incentives include market access, stable or sustained price appreciation in timber, and distance to market. Farmers usually increase both harvesting and tree planting when output prices for trees increase (Cubbage et al. 2003 cited in Zhang and Aboagye-Owiredu 2007) and if the price of food crops falls faster this may also influence farmers to plant trees (Godoy 1992: 714). Finally, external support in the form of seedling provision, technical advice, and financial support determine the extent to which farmers are inclined to engage in on-farm tree planting (Blay et al. 2008: 514, Kiptot and Franzel 2012:38).

2.2 Gender participation

The need to understand women's involvement in on-farm tree planting or the lack thereof is urgent in many developing countries but particularly in Ghana where forests are severely degraded. This leads to the second key concept in this study which is gender participation.

Principle 10 of Agenda 21 (UNCED 1992: 3) states that 'environmental issues are best handled with the participation of all concerned citizens...each individual shall have appropriate access to information concerning the environment... and the opportunity to participate in the decision making process'. According to Schreckenberg and Luttrell (2009: 222) 'participatory forestry refers to processes and mechanisms that enable those people who have a direct stake in forest resources to be part of decision-making in some or all aspects of forest management, from managing resources to formulating and implementing institutional frameworks'. However, according to Cleaver (1999:603) there is a strong inclination in participatory approaches to assume that there is one identifiable and homogenous community. This can lead to selective participation in that the most visible and vocal end up as partners in management, which may not accurately reflect the views and perspectives of the broader community. This scenario is extremely unsatisfactory because it risks projects being co-opted by certain groups or interests.

Varghese and Reed (2011:3) distinguish between nominal and effective participation when conceptualising inclusion. 'Nominal participation refers to the simple demographic representation of

particular groups in society, where representatives are assumed to share the values and attitudes of those they represent'. This participation is limited in that it tends to assume that individuals embody and represent a series of static characteristics rather than act on their beliefs. They express the view that women may not always hold knowledge and perspectives that are relevant to gender when they come to decision making forums. Varghese and Reed (2011:3) state that 'effective participation requires that participants are active and engaged in decision-making' as it holds more weight to the attitudes of individuals such as their knowledge of particular issues, their ability to mobilise resources and their comfort in speaking out on particular issues. This involves assessing the ability of members to enhance the equity and efficiency of decisions and to advance their goals, and also considers how power operates in decision-making processes. According to Varghese and Reed (2011:4) nominal and effective participation are linked in that the number of people from particular social groups will influence the formal and informal 'rules of entry' (i.e. how access is gained or constrained for nominal participation) and 'rules of practice' (i.e. informal guidelines about how to behave collectively) which can alter the conditions for effective participation. Varghese and Reed (2011:4) make a further distinction between the two forms of representation within effective participation which are: subjective attached and objective unattached. 'Subjective attached representation refers to acting for those with a subjective interest' (acting on behalf of others who share a stake in forestry matters, thus acknowledging the different stakes stakeholders may have). 'Objective unattached representation refers to acting for those who are uninterested' (acting for those who are not directly interested in forestry) (Varghese and Reed 2011: 4). In any project there is the possibility that participation can be a combination of subjective attachment and objective unattachment.

Varghese and Reed (2011:4) consider both nominal and effective participation as inclusion. They argue that 'each of these forms of inclusion implies different ways in which gender-based issues are understood and brought to the table'. Nominal participation would require, in order for their interests and needs to be met, that women must be present, while subjective attached and objective unattached representation suggests that women do not necessarily need to be present for their interests and needs to be met. They do, however, require that participants need to be aware of and have an ability to understand and speak for the different perspectives that women and men may have (*Ibid.*, p. 4).

Effective participation can be further analysed using the conceptualisation of Cohen and Uphoff (1980) who distinguish between (1) participation in *decision-making*, (2) participation in *implementation*, (3) participation in *benefits*, and (4) participation in *evaluation*.

Participation in decision-making refers to participation that centres on the generation of ideas, formulations and assessment of options, as well as the formulation of plans for putting selected opinions into effect. Cohen and Uphoff (1980:220) further analyse decision-making distinguishing between three different decision types:-

1. *Initial decisions* refer to the identification of local needs and how they will be approached through a particular project. Among the initial decisions in which local people can be involved are whether the project should start, where it should start, where it should be located, the ways in which it should be financed and staffed, the paths by which they will participate in the project and the contributions they are expected to make.
2. *On-going decisions* refer to decisions made after the project's establishment. They may be more critical to the success of the project than participants' decisions in initial design. They would include opportunities for stressing new needs and priorities, as well as adapting the project to priorities that best meet participants' needs.
3. *Operational decisions* relate to the specific local organisations which have been established by the project or which are linked to the project with a view to involving people in the delivery aspects of the enterprise. Participation in this context is reflected in membership composition, meeting procedures, leadership selection and influence within such organisations.

Participation in implementation encompasses:

1. *Resource contribution*: this can take a variety of forms, such as the lending of labour, cash donations, material goods and information. As expressed by Cohen and Uphoff (1980: 221) regarding this type of implementation, it is important to know who is contributing and how they have contributed, whether they are voluntary, remunerated or coerced, the degree to which they are provided on an individual or collective basis and whether they occur on an intermittent or continual basis. This is important as resource contribution can often be both unequal and exploitive.
2. *Project administration and coordination*: here local people can participate as locally hired employees or as members of various project advisory or decision-making boards, or members of voluntary organisations. Having local people involved in the administration and coordination of a project can increase their self-reliance as they become trained in techniques of project implementation. As expressed by Cohen and Uphoff (1980: 221) local people can provide valuable inside information, and advice may also be gained concerning local problems and constraints affecting the given project.

3. *Enlistment*: here it is essential to distinguish between enlistment in programmes and benefits derived from programmes, because enlistment does not ensure benefits. According to Cohen and Uphoff (1980: 221) there needs to be awareness that in some situations harmful consequences may result for rural people who are enlisted in project programmes without participating in earlier implementation.

Participation in benefits can be further deconstructed by distinguishing between:

1. *Material benefits*: private goods, increase in consumption, income and assets.
2. *Social benefits*: public goods, services or amenities such as schools, health clinics, water systems, improved housing and better roads. Attention should be paid to the amount, distribution and quality of these services and amenities.
3. *Personal benefits*: here three kinds are particularly important, i.e. self-esteem, political power and sense of efficacy. According to Cohen and Uphoff (1980: 221), acquiring more social and political power through the project operation does not necessarily imply that the benefits are on an individual level in their causes and effects, as such power is usually acquired on a group or sector basis.

Participation in evaluation: is less important for this study but still relevant to explain.

1. *Project centred evaluation*: a formal or informal review process of listing who has participated, how continuously and with what power to achieve action.
2. *Participation in evaluation through political activities*: local people can voice complaints and suggestions through e.g. elections at local, regional or national level which can provide some opportunity for favourable or unfavourable local evaluation, engaging in lobbying activities or influencing public opinion through demonstrations, protest or making use of the media.

This section has applied Cohen and Uphoff's (1980) analytical breakdown of the process of participation to demonstrate that there are many different dimensions of participation and ways in which one can be involved in a project. In order to understand the societal conditions that determine women's participation and involvement, the following section introduces the concept of gender order.

2.3. Gender order

Section 2.1 emphasised the importance of tenure security to women's participation in tree planting schemes. In connection with this, Quisumbing *et al.* (2001:177) state that 'transferring ownership of land to women is unlikely to raise productivity if access to and use of other inputs

remain unequal'. In other words, gender equity cannot be achieved simply by equalising land rights between men and women. It can only come about if other issues which serve to impose constraints on women are recognised and measures are put in place to remove these restrictions. This draws attention to women's position within society, also known as the gender order of society (Varghese and Reed 2011).

Varghese and Reed (2011:7) argue that women's nominal and effective participation in forest management is restricted by a gender order that marginalises their interests and potential contributions. I will use their concept of gender order to analyse factors determining women's participation in tree management. Gender order can be analysed using organisational culture, rule of entry, social norms and perceptions and rules of practice, division of labour and personal endowments. These dimensions may act on different scales and can also interact with each other. Therefore, a further elaboration is needed.

As stressed by Varghese and Reed (2011:5) **organisational culture** refers to the 'shared values and norms that guide behaviour within an organisation and between the organisation and others'. This shapes the extent to which participation is effective. **Rules of entry** refer to how 'access is gained or constrained for nominal participation' and as such may reinforce a gender bias (Varghese and Reed 2011:4). **Social norms and perceptions** include broader societal expectations about acceptable individual behaviour within social settings whereas **rules of practice** refer to informal guidelines about how to behave collectively (*ibid*) and can reinforce rules of entry. It is well recognised that women are often excluded from both nominal and effective participation in forest and tree management. 'Their lack of participation is caused by a number of reasons including; the rules governing the community forestry groups, social barriers stemming from cultural constructions of gender roles, responsibilities and expected behaviour, male bias in the attitudes of those promoting community forestry initiatives and logistical barriers relating to the timings and length of organisational meetings' (Agarwal 1997, 2001, 2007 cited in Mwangi et al. 2011:3).

Division of labour considers how paid and unpaid work as well as specialisation within paid work may be divided along gender lines. This interlinks with rule of entry. **Personal endowments and attributes** include education level, property status, marital status, age, and so forth. Many authors (e.g. Ardayio-Schandorf 2007, Mai *et al.* 2011, McShea 2009) observe that female farmers in Ghana still face great difficulty in gaining access to credit, land, education, training and information, and according to Quisumbing *et al.* (2001: 157) women's land rights within customary land-tenure regimes are often weaker compared to men's. On top of this there is a trend towards privatisation of resources, such as water, and formalisation of land and resource rights have made women's access

more tenuous (Agarwal 2003). Furthermore, with increasing social change, there have been changes in the structure of the household as well as in the pattern of dividing the work and sharing the responsibilities. Female labour participation rates in Ghana are relatively high with the majority of women in the informal sector being engaged in agriculture, agro-based industries and trade. Ghanaian women play an important role in the household economy in spite of their difficulties in mobility and access to production input, but they have become more overburdened in their productive and reproductive roles, and as the main carer of the household this inadvertently affects the whole society (Brown 1994:15-16). The above barriers can be said to be implemented through the gender order of society and therefore a further examination of gender differences within the household is critical for a complete understanding of the use and management of tree resources.

2.4 Conclusion

This chapter has presented the theoretical framework in which this research is embedded. It has explored the relevant literature which explains the three concepts of environmental governance, gender participation and gender order.

Environmental governance relates to the set of regulatory processes, mechanisms and organisations, through which political actors influence environmental actions and outcomes of management (Miller and Edwards, 2001: 241) and, thus, by planting trees one is performing environmental governance. There are a number of factors that can influence one's ability to plant trees, which include, tenure security, asset holdings, rights over trees planted, external support and benefits. However, there is a lack of understanding about how gender can further influence these factors and how they determine one's involvement in environmental governance through on-farm tree planting. Ardayfio-Schandorf (2007) states that tree growing requires secure access and rights over land tenure which women do not often have or have little informal control over. This stresses that women lack the ability to perform environmental governance through on-farm tree planting. However, principle 10 of the Agenda 21 (UNCED 1992) states that environmental issues are best handled with the participation of all concerned citizens. Accordingly, they should have a direct stake in the decision-making part of environmental governance. This involvement in environmental governance can either be through nominal or effective participation (Varghese and Reed 2011) For the purpose of this study Cohen and Uphoff's (1980) conceptualisation of participation is used, which distinguishes between (1) participation in *decision-making*, (2) participation in *implementation*, (3) participation in *benefits*, and (4) participation in *evaluation*. This further determines the way in which actors participate resulting in either their participation being nominal or effective.

Varghese and Reed (2011) argue that women's effective participation in forest management is restricted by a gender order that marginalises their interests and potential contributions and thus disempowers them. They refer to gender order as being the 'dichotomous order of gender whereby maleness and femaleness are perceived as opposites and attributed different forms of behaviour, different roles and different places' (*Ibid.*, p. 2). This study uses the conceptualisation of gender order proposed by Varghese and Reed (1980). They analyse gender order under the dimensions of organisational culture, rule of entry, social norms and perceptions and rules of practice, division of labour and personal endowments. These dimensions provide points of analysis which can be used to assess the factors which affect women's participation in tree management. Furthermore, gender order is affected by the household bargaining approach demonstrated by Agarwal (1997). The household members bargain over household resources, decision-making power and tasks. The outcome which will emerge depends on the relative bargaining power of the household members and their position outside and inside the household, which may favour some members over others (Agarwal 1997:3-4). Therefore, this study will focus on the factors which affect gender differences in on-farm tree planting which occur in the household and the community.

3 Methodology

Having discussed the research topic and theoretical angle this current chapter will define the methodological choices, explain the ontological and epistemological approach and how the research has been conducted, and will state and justify which methods were used to gather the appropriate information to answer the research questions. It will also explain the data analysis process and the limitations and ethical issues relating to the research.

3.1 Introduction

This topic area is complex and there are many aspects and opinions involved. Peshkin (1993: 28) expresses the view that 'no research paradigm has a monopoly on quality. None can deliver promising outcomes with certainty and none have the grounds for saying 'this is it' about their designs, procedures, and anticipated outcomes'. Therefore, the ontological approach is based on a constructionist approach, in that, culture is seen as a continuous state of construction and reconstruction (Bryman, 2008: 20). As Becker (1982: 521 cited in Bryman, 2008) recognises, the constructionist position cannot be pushed to the extreme; it is necessary to appreciate that culture has a reality that 'persists and antedates the participation of particular people' and shapes their perspectives but it is not an inert objective reality that possesses only a sense of constraint. However, by using the constructionist approach, it suggests that the categories that are used to help understand the social world are social product, e.g. gender can be seen as a social construction, which implies that rather than being treated as a distinct inert entity it is construed as something whose meaning is built up during interaction. It is seen as being highly ephemeral, in that it will vary by both time and space (Bryman 2008:20). Therefore, the constructionist approach acts as a point of reference but it is always in the process of being formed. This is relevant for this study as it is important in tree management to realise that many people hold different perspectives of reality and the factors which determine their participation may be different.

The epistemological consideration is critical realism which recognises the reality of the natural order and discourses of the social world. It holds that 'we will only be able to understand and so change the social world if we identify the structures at work that generate those events and discourses' (Bryman 2008:14). These structures, Bryman (2008:14) states, are not spontaneously apparent in the observable pattern of events; they can only be identified through practical theoretical work. Therefore, this thesis is a systematic attempt to express in thought the structures of gender and the way it exists independently from thought.

This study has a strong integrative and qualitative approach as it is more ‘concerned with the generation of theory’ (Bryman 2008:606). The main aim is to describe and understand the complexity of gender in a reforestation approach. It is, therefore, an ethnographic study where data is collected while living with the community which is being studied. However, qualitative data alone may be impressionistic and subjective so the research also has a quantitative component. This enables a more complete understanding of the topic under observation as both qualitative and quantitative research methods are complementary, in that one method can be counterbalanced by the other, resulting in a more holistic and contextual picture of gendered experiences. Therefore, the research will take a triangulation approach to data collection with a focus on questionnaires, supported by focus groups with the tree-growers and interviews with key ‘experts’ within the forestry industry.

3.2 Conceptual Scheme

The conceptual scheme in Figure 3.1 indicates the relationships between the main theoretical concepts which are environmental governance (with a focus on the NFPDP and one of its components, on-farm tree planting), gender participation and gender order. The different colours indicate that not all concepts are equally important within the research. Green (sustainable forest and tree management and improved livelihoods) are beyond the scope of this study but mentioned because they are the main objectives of the reforestation programme and on-farm tree planting schemes, which require gender equity in participation to fully materialise. Gender participation is a key concept in this research as well as gender order and other factors that influence adoption of tree planting by male and female farmers (highlighted in orange). On-farm tree planting (under the NFPDP) (highlighted in pink) will be addressed as an essential context, which defines the institutional arrangements that influence (tree) tenure security, benefits, government support and other factors that determine adoption rates. The arrows indicate how the variables affect each other, assuming that increased participation empowers women and allows them to change gender order as its underlying factors.

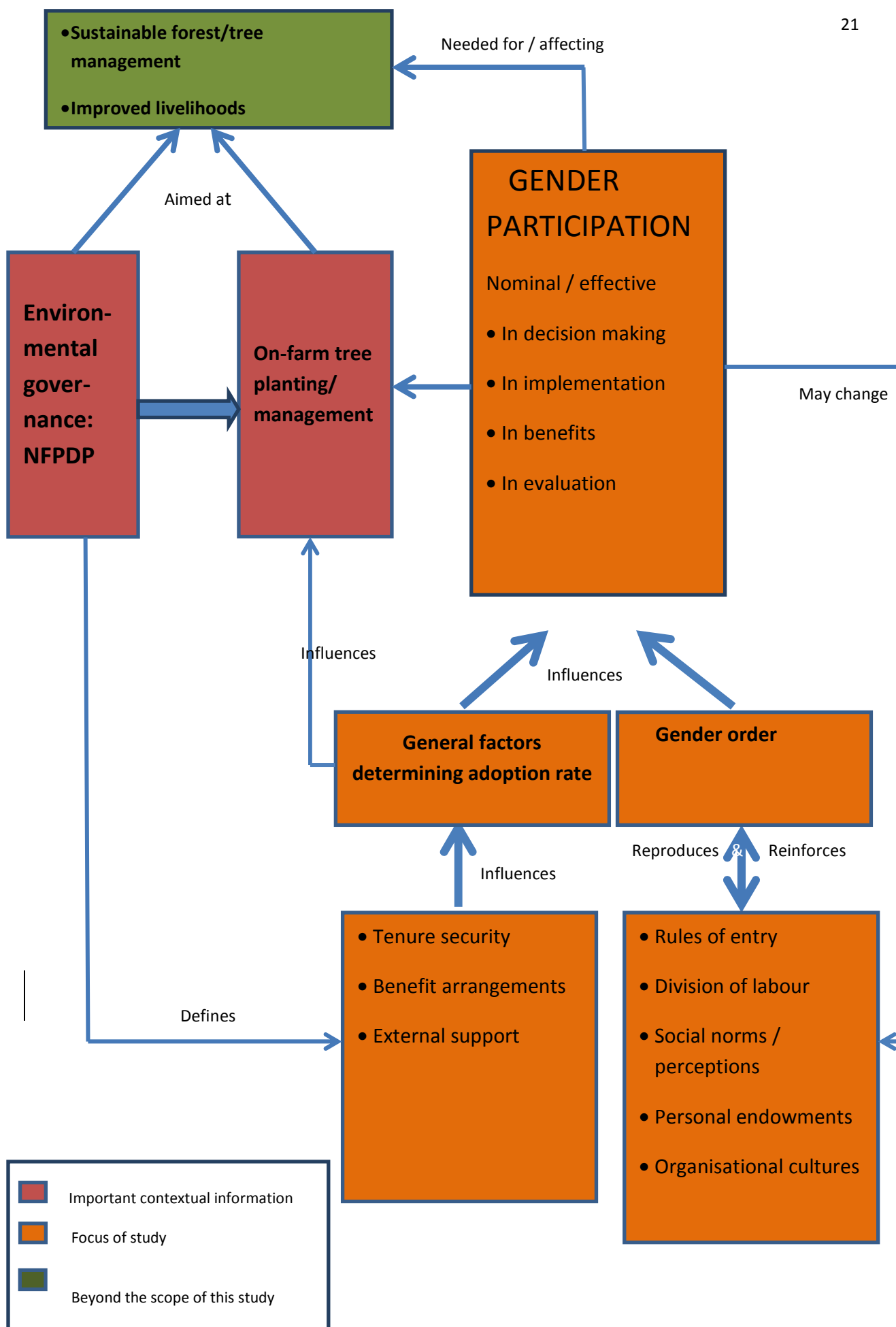


Figure 3.1: Conceptual scheme

3.3 Operationalisation

Table 3.1 shows how the main concepts used in this study were operationalised and broken down in dimensions, variables and indicators, and what methods and sources of information were identified to collect data on the indicators concerned.

Table 3.1 Operationalisation scheme

<i>Concept</i>	<i>Dimension</i>	<i>Variable</i>	<i>Indicators</i>	<i>Information source</i>
Environmental governance (focus on NFPDP only)	Tenure security	1:Land tenure (male/female)	1.1:Land ownership	Desk top study Questionnaires
			1.2:Access rights to land	
			1.3:Differences in tenure security	
		2:Tree tenure (male/female)	2.1:Tree ownership 2.2:Access rights to trees 2.3: Differences in access rights to trees	
	Benefit arrangements from trees	1:Formal and informal arrangements in place	1.1: Who has right to benefits?	Desk top study Questionnaires
	External support	1:Extension services	1.1: Who provides what kind of extension services? To whom (m/f)?	Interviews Focus groups Questionnaires
		2:Management strategies	2.1: Who provides extension services about management techniques (pegging, thinning, pruning etc.) and marketing opportunities for trees? 2.2: How often farmers are	

			contacted? Equal attention to male and female farmers?	
	Financial support	1:Financial support	1.1: Is there financial support/credit scheme in place? Can both males and females apply?	
Gender participation (in tree planting)	Decision making	1:Initial decisions	1.1:Male/female process of participation	Questionnaire Focus groups
		2:On-going decisions	2.1:Male/female participation in meetings/ executive positions	
		3:Operational decisions	3.1:Male/female decision making power regarding tree planting	
	Implementation	1:Resource contribution	1.1: Who invests in what/ how have they invested?	Focus groups Questionnaires
		2:Administration/ coordination	2.1: Who participates? 2.2: Who decides?	
	Benefits	1: Material	1.1: Amount of private goods? 1.2: Land assets? 1.3: Size of farm/no. of trees? 1.4: Available opportunities to increase assets?	Focus groups Interviews Questionnaires
		2:Economic issues	2.1: Amount, distribution and quality of services and amenities?	

		3: Social	3.1: Social and political power?	
		4: Personal	4.1: Level of confidence in their own abilities to take an active role? 4.2: Sense of efficacy/motivation?	
		1: Male /female role in society.	1.1: Limitation of female effective participation/gender quality.	
		2:Male /female representation	2.1: Male/female level of authority, decision-making regarding tree planting.	
Gender order	Organisational culture	1: Societal expectations about acceptable individual behaviour within social settings	1.1: Does male/female direct stake in tree management vs. position in society? 1.2: Room for voicing opinions/support to be listened to?	Interviews Focus groups Questionnaires
	Social norms and perceptions	1:Informal guidelines about how to behave collectively	1.1: Gender stereotypes of male and female behaviour.	Interview Focus groups Questionnaires
	Rules of practice	1:Likelihood of stakeholder position	1.1: What is the selection of male and female participants? 1.2:Male/female interest in participation vs. their level of experience and knowledge 1.3:Male/female desire to participate	Interview Focus groups Questionnaires

Division of labour (household)	1: Division of workload	<p>1.1: What are the divisions of labour amongst men and women?</p> <p>1.2: Cash income vs non-cash income?</p> <p>1.3: M/F reproductive roles vs. productive?</p> <p>1.4: Family reliance on farming?</p> <p>1.5: Male /female role within household reflects participation?</p>	Questionnaires Interviews Focus groups
	2: Power relations	<p>2.1: Specialisation male/female “expertise” forest business, chief executive officers?</p> <p>2.2: Administrative vs. scientific management and government position.</p> <p>2.3: Treatment at work?</p>	
Personal endowments	1: Male/female assets	<p>1.1: Education level</p> <p>1.2: Society’s value for education.</p>	Questionnaires Focus groups
	2: Property status	2.1: Property status- inheritance rights.	
	3: Age/health	3.1: Of working age group/ physical ability to work?	
	4: Social status	<p>4.1: Socio-economic status</p> <p>4.2: Role within the family and within the community</p>	
	5: Marital status	5.1: Does married status affect participation?	

3.4 Selection of the Study Area

The usefulness of a case study is to ‘investigate a contemporary phenomenon within its real-life context’ (Yin, 2003: 13). In other words, it gives the research depth and focus. The case study on on-farm tree planting was carried out in the Offinso Forest District, with Nikwaakwa and Nkenkaasu as the study villages which are about 4-5km apart.



Photo 1: A typical view of a home in Nikwaakwa.

These villages have been selected because both male and female farmers are involved in the on-farm tree plantation scheme as well as being active in tree grower associations, such as the Private Afforestation Developers Organisation (PADO). So a study into the role of gender in on-farm tree planting can be effectively conducted in this study area (Insaadoo *et al.* in press).

3.5 Units of Observation and Analysis

The aim of this research is to identify whether and why gender based barriers exist in on- farm tree planting schemes and the justification is that previous research (Insaadoo *et al.* in press) indicated biased gender participation in this reforestation scheme. Thus, the unit of analysis is the on-farm tree planting scheme, which is one of the 5 components of the NFPDP. The NFPDP aims to restore degraded forest areas and to stimulate plantation development in off-reserve areas with the ultimate objectives being to sustain the timber industry and trade and to create employment. The underlying contention of this research is that if the aim of the NFPDP is to improve livelihoods through reforestation, women need this as much as men. Thus, the units of observation are both male and female farmers in the villages of Nikwaakwa and Nkenkaasu, who are participants and non-participants in on-farm tree planting. By comparing the factors that increase or reduce participation it is possible to acquire a greater understanding of why certain members participate.

3.6 Methods

This section presents the methods employed in this study, in the order in which they were used.

Semi-structured personal interviews with key respondents: their semi-structured nature allowed room to pursue topics of particular interest and further comments which may not have been acknowledged in structured questionnaires. Before interviewing took place an interview guide was created highlighting a few specific questions and providing a framework for discussion. The interview guide (see Appendix 1) consisted of questions which were in line with the objectives of the research and the operationalisation scheme by addressing the indicators relating to the dimensions of benefit arrangements and external support and all the dimensions relating to gender participation and gender order. The basis for selecting interviewees was largely based on contacts and connections that Tropenbos International Ghana transferred (Appendix 2), which were developed through emails and telephone calls. The key sources for interviewees consisted of Forestry Commission (FC) employees from the headquarters in Accra, the Forest Services Division of the FC in Kumasi and Offinso Forest District, from the Forestry Research Institute of Ghana and from Tropenbos International Ghana. The nine interviewees were mixed in sex with 5 males and 4 females. Each interview conducted represented a different aspect of the topic area and unique information was received from each person reflecting their individual perspective and experience, all of which subsequently shaped this thesis. All the interviews were conducted in English. They were recorded with informed consent and afterwards were transcribed into written notes. They were dissected and regrouped according to the operationalisation of each concept. It was a very time-consuming process but was extremely beneficial when writing the data chapters.

Field observations: These drew from the insight which could be derived by observing the actions of the villagers. This involved a period of sustained contact in order to understand and document how things worked with regard to family set up and cultural organisation of the community. While in the field I stayed with a local family. Also questionnaires were conducted in the respondents' homes and this also allowed observations of how a family network works. I took part in farming activities and attended cultural events, including church services and one funeral. This enabled me to have an additional understanding of the cultural makeup of the villages which has assisted me in assimilating the data analysis and the information obtained from the interviews and questionnaires. This led to a better awareness of the socio-economic factors that may not be visible within the questionnaires. All relevant observations were noted down in a journal for future reference.

Questionnaires: Based on the operationalisation scheme, questionnaires (Appendix 3) were presented to male and female farmers, both participating and not participating in on-farm tree planting. The aim was to have 10 respondents within each of the following groups: male participants, female participants, male non-participants and female non-participants, so that comparisons in the dataset between these groups could be easily made. The actual numbers of interviews in each of these groups were 11 and 10 for male participants and non-participants respectively and 6 and 10 female participants and non-participants respectively (Table 3.2). Due to the gender biases in participation it was not possible to find enough female participants in on-farm tree planting. The reason for there being an extra male participant in Nikwaakwaa was that I was asked to interview the chief (who is a male participant) when the research was finished.

Table 3.2 Respondents to the questionnaires.

<i>Status of respondent</i>	<i>Name of village</i>		Total
	Nikwaakwaa	Nkenaasu	
Male participant	6	5	11
Male non-participant	3	7	10
Female participant	3	3	6
Female non-participant	5	5	10
Total	17	20	37

The questions were based on the farmers' socio-economic characteristics, the tenure arrangements they were involved in, the use and management of their tree plantations, their level of participation within on-farm tree associations and their household division of labour. The

questionnaire also made reference to the relevant questions for participants and non-participants and a large number of the questions were open so as to leave room for the respondents to express anything they felt important. All questionnaires were conducted in Twi (the local language), with the help of an interpreter who translated each response into English. A role play involving myself, an FSD official, research assistant, thesis supervisor (when she was in Ghana) and local supervisors was very helpful in restructuring and wording the draft questionnaire and test its applicability in the field.

Focus groups: These occurred after the questionnaire process and were spoken in Twi with the help of an interpreter. Men and women were first grouped separately to discuss the roles of men and women within the household and in the use and management of on-farm tree plantation and the constraints on participation that they both face. Both these groups took place in Nkenkaasu, while participants from both villages were present. The male group consisted of 17 and the female group of 16 participant farmers (not all females were participants but they were speaking on behalf of their husbands, $n= 11$). After separate groups a mixed focus group took place and was held in Nkwaankwaa. The purpose for this group was to give farmers an opportunity to discuss the ideas and opinions raised within the separate groups. The aim was that a woman and man from the same household would be present but this was not possible as one half of the couple always had to work. Eventually the mixed group consisted of 3 females and 6 males. A focus group guide (Appendix 4) was produced beforehand containing probing questions. The focus groups addressed the same dimensions as the questionnaires (as elaborated in the operationalization scheme), but not all the same indicators, with the awareness that the questions to some indicators were too personal to ask in a group scenario and were strictly kept for questionnaires. The focus groups were useful in establishing if there were shared opinions amongst members at the community level. Observation in the focus groups reflected how people responded to each other's views, and later comparisons were made, especially with the mixed group which gave a deeper understanding of the gender aspect.

Desk top study: this contained an extensive analysis of secondary data, specifically policy documents relating to both gender and on-farm tree planting within Ghana. The information collected through this method helped to answer the first research question.

3.7 Data analysis

The analysis process was performed using two main computer software programmes. The primary data is of mixed qualitative and quantitative nature, comprising semi-structured interviews, focus group discussions and questionnaires. The interviews and focus groups have been transcribed and coded using Atlas.ti software package. The questionnaires have been analysed using SPSS

software and served as the basis of the thesis which was complemented by the interviews and focus groups. Thus, comparisons have been drawn between them in a process of coding. Furthermore, a fieldwork journal, complemented with photographs (which will be used in later chapters), noted any observations and findings while in the field and further helped to shape this thesis.

3.8 Limitations to the research

Although the research went smoothly I still faced a number of challenges during the fieldwork. Language barriers were the most difficult challenges while staying in the village and even though English is the national language of Ghana only a small number of people in the villages spoke English, at a basic level, and they were mainly men. They couldn't talk about more detailed topics in relation to my research, which diminished my ability to explore the research further. Akwaaba (Welcome) was a word I heard several times daily while staying in the villages, and people were most inviting and friendly, however, I still felt that due to cultural differences participants may not have been completely forthcoming or open in expressing their views. To help with communication a translator accompanied me within the field. I had two stays in the villages, the first being with a student who helped with translating during the application of the questionnaires. She asked the questions in Twi and then translated answers into English. This enabled further probing questions to be put but she stressed on numerous occasions that she was worried that it wasn't translated well and that it takes many words to explain something in Twi which is explained in English with just one word, and as a result the meaning may have been lost. My second visit was with Thomas Insaidoo, a PhD student from KNUST engaged in the Tropenbos International Ghana programme, who helped conduct the focus group. We discussed beforehand that it would take too long to translate the conversation into English and we would just let it flow in Twi. Thomas asked them the probing questions and wrote down their answers in English. Often the conversation was very fruitful and expressive but, due to time constraints on writing and speaking, inevitably the full depth of the conversation was not translated.

As a white person from Europe, accompanied with an NGO and an FSD officer I may have given local people the impression that I could do something to help them even though I stressed, on numerous occasions, that I was only a research student and I was not in a position to help. A final challenge, therefore, encountered in the field related to raised expectations which I could not fulfil. Despite my clarifications given to respondents that I was doing academic research and was not involved on a long term basis with the FSD and Tropenbos International, they often assumed I could change their circumstances due to my connections and many of them may have over-expressed their financial difficulties as a result.

3.9 Ethical issues

When performing research it is extremely important to pay particular attention to the ethical aspect throughout the research process. As a researcher there are obligations to the society in which you are conducting research. In Ghana when arriving as a visitor in a village it is customary to pay a courtesy visit to the chief of the village in which you are staying.

A researcher needs to be aware of the harm that the research could bring to the individual respondents who take part in the study. All questionnaires took place in the homes of the respondents' and it was necessary to create an atmosphere in which they were at ease. Before starting each respondent was made aware of what exactly the research was about and I informed them that I was a Masters student from the University of Amsterdam and worked with the help of Tropenbos International Ghana. This helped build a level of trust. They were also informed that they were not obliged to answer any question which they felt inappropriate or couldn't answer however any input that they provided would be most useful to my studies. This was all aimed at reducing the risk of causing any stress or discomfort. Also, before starting they were informed that I was in no position to make changes to their situation and any information they provided would primarily help me write my project. I made sure that I wasn't making any promises that I was not able to fulfil but I did make them aware that my findings would be passed on to the FSD and that they might be able to use the information to make changes, so in that way I was not there solely for my own benefit. Before starting the questionnaires and focus groups I asked for the participants' informed verbal consent. Furthermore, I informed them that their details, such as their names and any information that could be traced back to them would remain private and that anything that they would express of a personal nature would be anonymised. As a token of gratitude to my respondents for their precious time in helping me I followed local custom by giving small gifts such as a bar of soap and biscuits.

First contact with key respondents was made by email or telephone calls so as to organise a date and time that was suitable for them. The meeting would be held in their office in order to reduce taking up their time. At this point informed consent was given to interview and to record the proceedings. Before interviewing they were asked again if they had any problems with recordings being made and that the recordings would only be used for the researcher's work and that the recording and transcript would remain private. All interviewees were made aware that full respect would be given to their opinions and they were open to express anything they felt to be relevant. The interviewees were also made aware that if they wished their names to remain confidential they would not be used within the report.

3.10 Conclusion

This chapter has presented the methodological positioning of the research. By doing so it has presented the epistemological consideration in which it is positioned, the conceptual scheme showing the relationship between the main concepts (the backbone of the study) and the operationalisation which shows how the concepts are investigated. Furthermore, it has demonstrated that the study areas of Nikwaakwaa and Nkenkaasu have been selected due to the activity of both male and female farmers' involvement in on-farm tree planting within the villages. The units of observation, therefore, are male and female participants and non- participants in on-farm tree planting. By doing so I hoped to demonstrate the gender aspect and also indicate barriers to on-farm tree planting (the unit of analysis) experienced within the villages. Data was collected by means of 9 interviews, 37 questionnaires and 3 focus groups. The main limitations faced were language barriers which existed between me and the respondents resulting in some loss of a complete understanding of their responses. The main ethical consideration concerned was to reduce the level of harm to respondents by ensuring their privacy was respected and in obtaining informed consent. The next chapter describes the overall policy framework in which this research is positioned and provides relevant information on farm tree planting.

4 Policy Framework

This chapter addresses how both on-farm tree planting and gender are considered in the overall policy framework in Ghana. It firstly draws attention to Ghana's forest policy which promotes reforestation efforts and the National Forest Plantation Development Programme, of which on-farm tree planting is one of the main components. Attention is then given to how gender is considered at the national policy level and how it is incorporated within environmental policies.

4.1 Ghana's reforestation policy context: governance factors determining adoption rates

'Ghana is richly endowed with renewable natural resources, which have played vital roles in its socio-economic development' (Boakye and Baffoe 2006:2). However, recent statistics have shown that Ghana has had an ongoing annual forest loss of 115,000 (since 2000) (Insaadoo, *et al.* 2012:1). The high deforestation rate encouraged the government to embark on a reforestation programme as part of the Forest and Wildlife policy of 1994. During the early 1990's, due to influences from global changes, Ghana's forestry sector witnessed a shift towards a decentralisation and a collaborative approach (Derkyi 2012). Therefore, the 1994 policy aims to encourage the participation of local farmers in the efforts of reforestation through economic tree planting and plantation development (Insaadoo *et al.* in press). Following the Forest and Wildlife policy of 1994, a Forest Development Master Plan was launched in 1996 (FDMP 1996-2020) with the aim of promoting private plantation development in order to encourage the involvement of individuals and communities in the production and management of forest resources (Insaadoo *et al.* 2012). With a target of 10,000 ha per year for 20 years it hoped to direct efforts towards sustainable production of timber. This effort was strengthened in 2001 when the government launched the National Forest Plantation Development Programme. The National Forest Plantation Development Programme aims at combining the development of a 'sustainable forest resource base for industrial timber with enhanced environmental quality, employment generation and increased food production' (FC 2008 cited in Insaadoo *et al.* 2012). In order to restore tree cover it aims to replenish degraded forests by stimulating reforestation of degraded forest reserves and afforestation (planting new trees where there hadn't been trees before) in off-reserve areas and by stimulating tree growing 'through the establishment of forest plantations and the planting of trees on farming land' (FC 2008 in Insaadoo *et al.* in press).

Legal reforms provided for rights of ownership and profits; a revision of the Timber Resource Management (Amendment) Act 2002 (Act 617) (FC2006 in Insaadoo *et al.* in press: 1) 'led to tree

ownership being vested in the farmer or planter of the tree' on off-reserve, while providing for guarantees against expropriation to individuals, so that trees planted on farms are the property of the landowner. This was a change in common practice in Ghana, where tree ownership is vested in the state. As stated by Insaadoo et al (in press: 1) Section 3 of the Forest Plantation Development Fund Act 2000 establishes rights of ownership over timber produced to beneficiaries of the fund. This encouraged small-scale farmers in off-reserve areas to engage in on-farm tree planting throughout Ghana's high forest zone. 'In response to farmers' interest, both state actors (e.g. the Forest Services Division (FSD) of the Ghanaian Forestry Commission (FC) and the Forest Research Institute of Ghana (FORIG) and non-state actors (e.g. NGOs, timber and mining companies) stimulated tree planting among small farmers in off-reserve areas' (Insaadoo *et al.* in press).

4.2 Gender considerations at policy level

Due to women's subordinate position in society, there is an international focus on the need to guarantee gender equity in the regulation of access to property and social justice. As a signatory to the Universal Declaration on Human Rights of 1948, the International Covenant on Economic Social and Cultural Rights (ICESCR) of 1966, the Convention on the Elimination of All Forms of Discrimination Against Women of 1979 (CEDAW) and the African Charter on Human and People's rights (the African Charter) of 1981, Ghana is bound by the express provisions of these instruments to protect and promote women's rights to property (Minkah-Premo and Dowuona-Hammond 2005: 13-14).

"As a country committing to gender awareness Ghana must indicate that they are gender sensitive in everything they do" (Interview 1).

It is acknowledged under the Beijing Declaration and Platform for Action (1995) 'that women's poverty is directly related to the absence of economic opportunities, lack of access to economic resources including land ownership and inheritance, credit, lack of access to education and support services and their minimal participation in the decision-making process' (Minkah-Premo and Dowuona-Hammond 2005:15). Strategic Objectives and Actions on Women and Poverty (Chapter IV.A) of the Platform for Action require Ghana to "formulate and implement policies and programmes that enhance the access of women, especially subsistence farmers in rural areas... provide access to and control of land, etc. in order to increase women's incomes and promote household food security" (*Ibid.*).

As expressed by Brown (1994: ii) female labour participation rates in Ghana are relatively high, with the majority (90%) being self-employed or unpaid family workers or working in agriculture, agro-based industries and trade.

“Women in Ghana are estimated to constitute 52% of the agricultural workforce. They produce 70% of the subsistence crops and constitute 85% and 95% of the actors in food distribution and agricultural processing industries” (Ardayfio-Schandorf 2007: v).

However, women’s role in forestry is limited. The forestry sector was set up as a male institution by the colonial government and management has remained male dominated: only 11% of jobs are held by females (Ardayfio-Schandorf 2007:9).

‘Forestry has traditionally been one of the professions in which men have been most firmly and exclusively entrenched. It is not since forestry schools – and hence the profession itself – were there places open only to men. Arguments that the nature of the work make it unsuitable for a women persisted in forestry long after they had disappeared in other ‘manly profession’ (FAO 1984 cited in Ardayfio-Schandorf 2007:7).

As expressed by Ardayfio-Schandorf (2007:9) it is the authority of the government to create gender aware policies and implement them in forestry institutions, research, teaching and programmes, but there are no explicit gender policies on recruitment, postings, promotions or training of men and women into various professional positions. This could be because there are fewer women than men working in forestry and as expressed by a female FC officer:

“It’s a bit tough for women unless they have an interest, this is because of their family responsibility which they must carry out as their female role” (Interviewee 7).

Their aspirations in many instances tend to be influenced by such choices.

“Some women in senior positions had to carry their babies to the field and we have only few women who are prepared to do that” (Interviewee 7).

As noted by Ardayfio-Schandorf (2007: 11) men’s work is given more value compared to women’s. Women interviewed from the Forestry Commission stated that they feel there is a male bias in the workplace as expressed by a female FC officer in the head office:

“When it comes to involving women in higher decisions that is when you will see the bias, the men will do everything to prevent you from going up” (Interviewee 6).

Promotion seems to be difficult for women in the FC. Although the women interviewed held high positions they stated that they had found it very difficult to achieve their positions, and one

interviewee stated she couldn't help but notice that she had stayed in the same position for fifteen years and even though she had applied for openings in the higher positions a man would always be selected. She didn't want to say that this was due to her sex but she implied that it prevented her improving professionally. This was even noticed among the male FC officers:

"We do equal jobs for equal pay, but when it comes to our set up it's the female role that is relegated to the background" (Interviewee 8).

The new Forest and Wildlife policy (2012) will be released in the following months. It will be the first forest policy to include the aim to address 'mainstreaming gender and vulnerability issues in forestry development planning and management' (Guiding principles 3.2.11). One of its main strategies is to 'support women in training that will allow them to meet their objectives and assume optimal management responsibilities' (Ministry of Lands and Natural Resources forthcoming: 2). This should encourage more women to become involved at different levels in forestry management but it doesn't mention how this would be achieved, which leads one to question its ability to implement a gender aware forestry plan.

4.3 Conclusions

This chapter has served to introduce the background to the findings of this research. It is a contextual chapter that has focused on the underlying policies in relation to on-farm tree planting and gender within Ghana. It first addressed the policies and laws regarding on-farm tree planting. Following this it recognised the impact on gender issues in the context of the responsibilities flowing from obligations created by international conventions to which Ghana is a signatory. It then looked at gender biases in forestry, particularly among policymakers and practitioners. Results suggest that forestry is not gender neutral and that it fails to pay special attention to issues faced by women, which causes a negative effect on the women employed in the sector. The next chapter deals with gender differences regarding participation in on-farm tree planting.

5 Gender differences in participation

The essence of participation is exercising voice and choice and developing the human, organisational and management capacity to solve problems as they arise in order to sustain improvements (Saxena 1998: 111 cited in Cornwall 2001: 6). Here Saxena distinguishes between two aspects of participation; the efficiency argument, which considers participation as a tool for achieving better project outcomes, and the equity and empowerment argument, where participation is a process which enhances the capacity of individuals to improve their own lives (Cleaver 1999: 598). If gender is addressed within these two contexts of participation in on-farm tree planting it can lead to more efficient tree planting schemes and result in the empowerment of the people participating in the scheme.

In the villages men's participation rate far exceeds women's and men and women participate in different ways. The kinds of participation that warrant major concerns between men and women in the villages are their *participation in decision-making, implementation and benefits*.⁴ This chapter explores the differences in men and women's participation within these three dimensions, whereas the next two chapters analyse which governance and gender order-related factors affect these differences in participation.

5.1 Gender participation in decision making in on-farm tree planting

Within the villages the household is the key living unit, typically large and often including members of the extended family. Table 5.1 shows that within all the groups of respondents the highest percentage lived in family groups of 6-10 people.

⁴ Participation in evaluation is not relevant in this study as no evaluation efforts have yet been undertaken related to on-farm tree planting.

Table 5.1 shows how many members each respondent has within their household (a member is considered to be those eating from the same pot and dependents).

	1	3-5	6-10	11-15	16-20
Male Participant	9.1%	9.1%	54.5%	27.3%	
Male Non-participant	20%	20%	60%		
Female Participant			50%	33%	17%
Female Non-participant		30%	60%	10%	

As stated by Brown (1994:31), within the household, members bring their own comparative resources, such as land, and it was seen within the villages that both male and female respondents own their own plots. As explained by Agarwal (1997:3) within each household members cooperate over control of and responsibilities for the production, investment and decision-making in relation to farming. The outcome which will emerge depends on the relative bargaining power of the household members (Agarwal 1997:4).

5.1.1 Initial decisions

In the traditional Ghanaian society the man has always been regarded as the head of the household and the breadwinner for the family (Brown 1994). The results of this study support this. From the sample 84% (n= 21 male and 10 female) of the farmers believe their household head is a man (the men all believe it to be themselves). The remaining 16% (n=6) who stated that the head is a female are widowed women (themselves) and explained that they initially went into tree planting because their husbands had decided to do so and that they were supporting him. One male respondent (a tree-grower), aged sixty, stated:

“It is the husband who initiates tree planting then the wife supports him but it is always the man who makes the decision. In most cases you see men planting but they are being supported by a woman”.

There are more men than women involved in tree planting. This study suggests a number of reasons to explain this.

1. Male farmers have generally inherited larger plots of land compared to females so men have more land to devote to tree planting (see Chapter 6 for further details). As expressed by an FC officer,

“When it comes to the allocation of plots, the men get more plots than the women ...when it comes to tree planting people see tree planting as a long-term investment , why would women with a small piece of land go into tree planting and a long term programme?” (Interviewee 1).

2. During the interviews female farmers repeatedly stated that ‘marriage is a team’ and that they therefore support their husbands. Interestingly, males never said this but when asked, 54% of male participants agreed that they were being supported by their wives.

3. It was found that not all wives of male tree growers planted trees on their own land. But, on the other hand, all the husbands of female tree growers were also planting trees on their lands.

Kiptot and Franzel (2012:13) explain that the wife is expected to seek the opinion of her husband and ultimately his consent before going ahead with tree planting and any other plans that may bring about any changes in the allocation of household’s resources. It was, therefore, rare to find females participating without their husbands also participating.

4. The division of both farm and household tasks (chapter 7) also places male farmers in a better position to make initial decisions. As observed, the male farming tasks consist of tree planting and land preparation while their household tasks consist of the provision of money. This gives the male head the decision-making power over whether an activity ‘should start, where it should start, where it should be located and the ways in which it should be financed’ (Cohen and Uphoff 1980:220). Female (widowed) headed households make these decisions in the absence of their husbands. Furthermore, typical female tasks involve women more in on-going decisions (decisions made after the project’s establishment) relating to weeding, planting and watering.

5.1.2 On-going decisions

Women’s involvement in on-going decisions is a lot stronger than their involvement in initial decisions, but their participation is still weaker than men’s. In the villages 41% (n=7) of the tree-growers stated that on-going decisions concerning tree planting are shared between husband and wife, 41% (n=7) of the tree-growers stated that the male makes all the decisions concerning tree planting, and the remaining 18% (n=3) are widowed females who stated that they make the decisions. So, within tree planting, a similar percentage of households share decisions as have the male making the decisions.

But when it comes to crop planting as shown in Table 5.2, participating households have a higher percentage of shared decisions than male decisions. In non-participating households, it is a higher percentage of males who make the decisions rather than share decisions. More widowed participants make their own decisions than widowed non participants.

Table 5.2 Household decision making power concerning crops planted on farmland.

	Male head makes the decisions	Female head (widowed) makes the decisions	Decisions are shared.
Male Participant	27%		73%
Male Non-participant	80%		20%
Female Participant		33.5%	66.5%
Female Non-participant	60%	20%	20%

This shows that in participating households, decisions concerning crops are more likely to be shared than decisions concerning tree planting.

5.1.3 Operational decisions

Although there are no gender biases against women growing trees, few women attend meetings in the PADO tree growers association even though their attendance is not restricted. Men, therefore, disproportionately assume decision-making roles in the public domain. For the women involved in the study it seems that despite their household position in decision-making, their many household and farming tasks limit their ability to take part in the operational decision making. As will be seen in the next chapter (figure 6.6) with the exception of one who is an executive member, no women are members of the PADO association while the majority of male participants are members. Nevertheless, among the female participants 66% felt that their opinions were well represented despite their absence. They further stated that they hear of plans and ideas from their husbands or neighbours. A case study from Bali, Jha (2004:563), shows that men outnumber women in decision-making in the public domain because women's contribution to the support of the household and community is consistently devalued by an ideology that men have a greater familiarity with agricultural work and entry is restricted to men who have authority. Thus female authority which women derive from work and which might enhance their claims to decision-making is undermined by their portrayal as economic dependents and the social and political inferiors of men.

5.2 Gender participation in implementation

People can participate in the implementation of on-farm tree planting in three principle ways; through resource contribution, administration and enlistment.

5.2.1 Resource contribution

With respect to resources a distinction can be made between land, labour and finances.

It can not be automatically assumed that the ability to contribute land to tree growing is related to the total size of land owned. Thacher *et al.* (1997) and Salam *et al.* (2000) state that large farm sizes often play a role in farming households' participation in tree planting programmes, while Otsuka *et al.* (2001) reported that size does not influence tree planting (Zhang and Aboagye-Owiredun 2007: 604). In this study it was found that access to land and tenure security do not restrict participation in tree planting (see Chapter 6), but that the size of land does affect the relative size of the area dedicated to tree growing. Although all the farmers interviewed have integrated their tree planting with food crops, it was found that farmers with smaller plots are planting trees within their whole farming system and planting on all their land, while the majority of farmers with larger plots are only devoting a small section of that land to tree planting along with crops (see Chapter 6 for further details).

There is a general perception that because men own more land than women they plant more trees. As a male farmer aged 41 stated:

'As men own more land than women they are able to dedicate more of their land to tree planting'

Figure 6.2 (chapter 6) shows that the male participant group has the biggest number of larger plots of land (41 acres or greater). This gives the impression that tree planting is mainly a man's business and that the on-farm tree planting scheme tends to overlook women as a result. Figure 5.1 shows that only men plant the largest areas of trees. A higher percentage of women than men are planting trees on smaller plots.

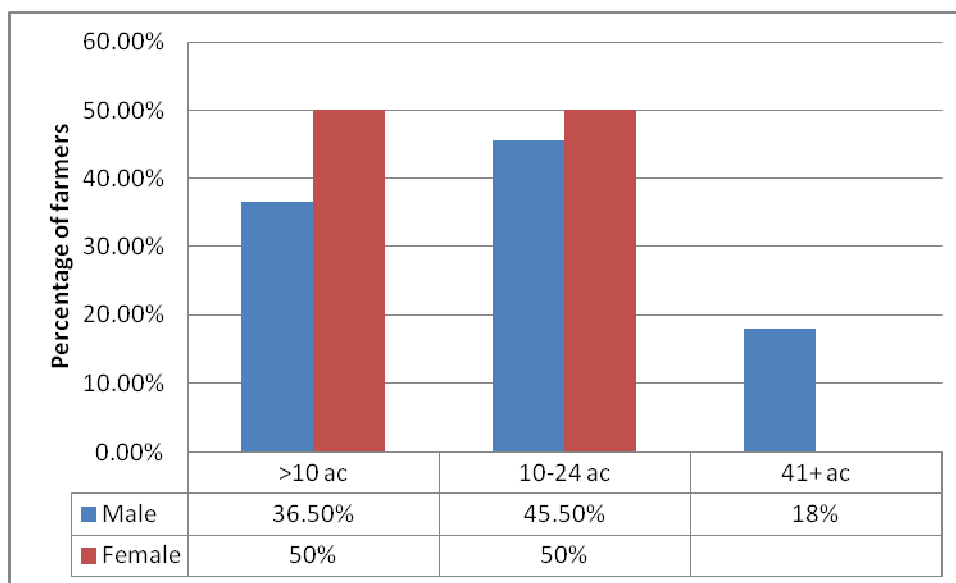


Figure 5.1 Gender differences in land area devoted to tree planting.

As far as labour is concerned, all farmers are planting trees on their own land with the support of family labour, with the exception of the two widowed women who are using paid labourers. Swinkels *et al.* (2002) stated that women in western Kenya are disadvantaged in that they face greater difficulty obtaining male labour and are unable to hire labour because of cash shortages. However results from this study show that as widowed women take on the responsibility of household finance they are in a position to make the decision to hire labour.

With respect to financial means dedicated to tree planting all (n=17) tree growers expressed the view that they were financing their tree planting by their own means. The tree-grower household income came from selling food produced on their farm, the most popular of which are cassava, yam, maize, plantain, orko and peppers, the money from which is used to buy tree planting equipment and seedlings.

5.2.2 Project administration

Although tree planting is administrated at household level, it can be considered as a project from the perspective of the Forestry Commission and the Ministry of Agriculture. These organisations provide seedlings and extension services through the PADO tree growers association. For participation in project administration, participation in the PADO is therefore essential. As fewer women than men participate in the PADO, (a ratio of 7 to 1, see Chapter 6), women have less opportunity for acquiring new knowledge and this leads to a lack of extension services for women. Failing to consult and involve women means their existing knowledge does not enrich tree planting programmes which limits their efficiency (Agarwal 2001: 1628). This reduces the prospects for forest

rehabilitation and by failing to take gender into account seriously affects the project's ability to fulfil household needs.

Although there are no rules which hinder women attending PADO meetings, behaviour experienced in the mixed focus groups may reflect what happens in such meetings. Initially participation was equal but men soon vocally overpowered the women as a result of which they became reserved despite encouragement (this group included the female executive member). As stated by Agarwal (2001: 1626) women's effective participation in decision-making in associations 'would require that women not only become members of the group, but also attend and speak up at meetings and ensure that decisions are in their favour', but the disproportionate numbers of men and women may make it difficult for women to speak out. Furthermore, participation is important as a measure of citizenship rights and as a form of empowerment and voice. In this respect, women's absence in PADO meetings is an indicator of the project's failure to promote participation as empowerment. Excluding women while including men could worsen power relationships and further disempower women (Agarwal 2001: 1630).

5.2.3 Enlistment

There needs to be awareness that in some situations harmful consequences may result for people who are enlisted in project programmes without having participated in earlier implementation (Cohen and Uphoff 1980: 221). This has happened; the farmers who had heard that tree planting is a good investment for the future decided to plant trees on their own land and then became members of PADO. They are not aware of the challenges to tree planting such as the difficulty in obtaining credit and financial support from the Forest Plantation Development Fund (see Chapter 6) until after they had planted. After a few years they become disheartened. If they had joined PADO before engaging in tree planting then they would have been better aware of the constraints on tree planting and perhaps would have dealt with them better.

5.3 Gender Participation in Benefits

Participating in a project such as tree planting has the potential of leading to three types of benefits; material, social and personal. This study shows that one must participate in decision-making and implementation in order to receive any benefits, as only the owners of the private lands on which trees are planted, and members of their households, will receive the benefits.

5.3.1 Material benefits

The results of this study (Table 5.3) show that only one third of the male participating farmers consider tree planting to be beneficial and that half of the participant female farmers claim to have

received benefits from tree planting. ‘Future benefits for the children’ is one of the main reasons for farmers going into tree planting. Another benefit (probably because it’s a fashion, and much debated by NGOs) is environmental, such as improving soil fertility and providing shade from the sun to help grow crops. The final benefit is providing firewood (all participating women mentioned this due to its importance in the household).

Table 5.3 Farmers’ perceptions of benefits from tree planting

Status of farmer:	Has tree planting brought you any benefits?	
	Yes	No
Male Participant	27%	73%
Female Participant	50%	50%

The main reason for farmers claiming that there are not any benefits is that their trees, planted in the 1990’s, haven’t matured yet. Only two farmers (one female and one male) have harvested once. The fact that tree planting is a long-term investment also plays a role in the material benefits derived from the scheme. Land dedicated for tree planting is not available for anything else, and will hardly generate income until the trees will be harvested. As expressed by one Interviewee from Tropenbos,

“A farmer who is planting trees, thinks of his economic gain. His main purpose is getting money in the future but it takes a long time before he will get any money from his trees. We could encourage the farmers to plant food crops alongside their trees but after three years or so the canopy closes over and they won’t be able to plant food crops” (Interviewee 9).

Overall, participating farmers are dissatisfied with tree planting because they are pumping so much in and not getting anything in return. Many farmers (84%) face financial difficulties in tree planting as they mainly fund it by their own means and have limited ability to increase tree planting on their lands. Due to these limited prospects for benefits, there is a high risk that participating farmers will abandon their tree planting activities. A FORIG researcher stated:

“Farmers should get some benefits; they also should be happy otherwise they give up and abandon their plots” (Interviewee 2).



Photo 2: A male tree-grower and his wife; who are finding it very difficult to sell their teak seedlings. They have ten more bags.

The lack of profits and financial instability in tree planting would explain why there are non-tree growers. One male farmer expressed his desperation for the lack of profits by saying;

“My friends laugh at me for going into tree planting; now I just want to cut the trees but I can’t because I have invested too much. We (tree-growers) need more support from FC”.

The government should encourage tree planting more, but also be aware that this means taking away (increasingly scarce) land that cannot then be used for other crops. They need to create more food security or a more stable income both in the long and short term for tree-growers.

5.3.2 Social benefits

Tree planting schemes have not developed sufficiently to create social benefits in the villages such as schools, health clinics, water systems, improved housing or better roads.

5.3.3. Personal benefits

As explained in Chapter 2, personal benefits refer to such issues as self-esteem, political power and sense of efficacy. These kinds of benefits are mainly related to tree growers’ participation in the PADO.

The tree growers association PADO meets once every month to share opinions and ideas. It is also the gateway to accessing extension services and information about the Plantation Fund Board. From the sample, the majority of male participants and only one female are members, and the extension services have only been given to men. Some of the farmers stated that they were planting trees for environmental benefits for the community and stated that it was something that benefits everyone.

As men are more involved in the association they have a stronger political power than the women and their opinions are heard as a group. Male tree growers are, therefore, stronger as a group. This will positively affect their level of confidence and motivation to attend to their farms, as is reflected in the following quote from one of the participating male farmers:

“If you are able to plant trees people will give you more respect”.

5.4 Conclusion

This chapter has looked at gender differences in participation in on-farm tree planting in the two study villages. The three key areas in participation that have been investigated here are participation in decision-making, implementation and benefits.

Although both men and women own land it is the household head who holds the most bargaining power and therefore makes the initial decision for the household to participate in tree planting even on his wife's land. Results indicate that women do not go into tree planting unless their husbands are also participating, while a male participant's wife does not necessarily participate.

Women's participation in tree planting is much weaker than men's. Results show that this is caused by (1) women generally have less land to plant trees, (2) women having an obligation through marriage to support their husbands with labour on his land before tending their own farms (3) women's decision to participate in tree planting is made by their husbands and 4) women have a larger number of household tasks which reduces their amount of time to devote to tree planting compared to men.

Women's operational decisions are weaker than men's as few women attend the PADO which limits their participation in administration and enlistment. Jha (2004) puts this down to women's position in society which gives men more authority. Their lack of attendance limits their access to extension services and, with that, their ability to take part in on-going decision-making and to develop their skills.

People can participate in implementation in three ways: resource contribution, administration and enlistment. Women as a group are disadvantaged in this area compared to men. As women have less land they have less land available to plant trees which further affects their potential to expand their area for tree growing.

Women's lack of participation in decision-making and implementation further affects their ability to participate in benefits compared to men. However results show that 73% of male and 50% of female participants believe that tree planting is not very beneficial. The results further show that the short term material, social and personal benefits from tree growing are few.

The results presented in this chapter show that the participation of farmers in the on-farm tree planting scheme is neither efficient nor beneficial to the lives of those participating, especially women, as their participation in many areas of the scheme is deficient. Male participation does not lead to better project outcomes because they lack the financial support and benefits in order to efficiently engage in tree planting. As it stands now, on-farm tree planting lacks the potential to improve participant's lives. The next two chapters take a closer look at the factors which determine gender differences in participation.

6 Governance factors determining on-farm tree planting adoption rates – a gender focus

This chapter discusses the governance factors that determine farmers' ability or willingness to take part in on-farm tree planting. As stated in Chapter 1, several studies have listed important factors that determine adoption of tree plant practices in Ghana, including tenure security, communication/extension services, financial support, benefit sharing and access to markets for plantation products (Appiah 2001, Zhang and Aboagye-Owiredun 2007). However, these studies have failed to give attention to gender. This chapter addresses three of these factors – land and tree tenure, benefit sharing arrangements and external support – from a gender perspective, based on the outcomes of the interviews, questionnaires and focus groups.

6.1 Gender imbalance in on-farm tree planting

There is evidence that sustainable forest management (Ardayfio-Schandorf 2007, Gurung and Quesada 2009 and McShea 2009) and on-farm tree planting (Insaiddoo *et al.* in press) are gender biased with much larger involvement by men than women. This corresponds with the experience in this study in that finding female on-farm tree growers for an interview proved to be a challenge. This is supported by the fact that out of the number of 365 smallholder farmer participants for the whole Offinso Forest District 320 (88%) are male and only 45 (12%) are female (results from local chairman of PADO and an officer from FSD). This is an extremely disproportionate share considering that the population of the district is 138,190 comprising 68,712 males (49.7%) and 69,477 (50.3%) females (Offinso district profile).

This evident lack of female participants in on-farm tree planting needs further analysis. It is also relevant to investigate the reasons for male participation and the different circumstances between male and female participants and non-participants, in order to obtain a deeper understanding of the factors which determine their involvement in tree planting.

6.2 Tenure security and land size

The FAO, in a study on rural land tenure, defines tenure security as 'the certainty that a person's rights to land will be recognised by others and protected in cases of specific challenges' (FAO 2002: 18 in Ubink *et al.* 2009: 13). Certainty is mostly seen as a function of two elements: (1) assurance in exerting rights and (2) the costs of enforcing these rights, which should not be inhibiting (Place, Roth and Hazell 1993: 19-21). Robinson (2005: 143) argues that uncertainty has been demonstrated to delay investment until that uncertainty has been resolved (Robinson 2005). In the words of one interviewee from FC:

‘If you don’t have secure land rights you can’t plant trees’ (Interviewee 1)

Many studies show that smallholders must enjoy security over land or trees before they cultivate or care for the trees (Chambers and Leach 1989, Godoy 1990, 1992, Deininger *et al.* 2006). This section firstly looks at the governance arrangements in place with regard to land and tree tenure and then analyses whether and how these affect gender differences in tree planting.

6.2.1 Tenure arrangements in statutory and customary law

Property rights to resources such as land and trees play a fundamental role in governing the patterns of natural resource management, as well as the welfare of individuals, households and communities who depend on those resources (Meinzen-Dick *et al.* 1997). Policies which shape property rights can play a major role in promoting (or inhibiting) economic growth, equity of distribution and sustainability of the resource base. In Ghana, as in many African countries, gender and kinship relations play a central role in the way in which land rights and production relations are determined (Runger 2006) (see Chapter 2).

As outlined in Chapter 2 (Section 2.1) once women have inherited land their use of it is not restricted (Boakye and Baffoe 2006: 12). However, Runger (2006) expresses the view that under customary land tenure systems, control over resources generally follows clearly defined gender-segregated patterns based on traditional norms, which operate in such a way as to limit the tenure rights of women as compared to men. In Ghana, women’s access and control over productive resources, including land, are determined by male-centred kinship institutions and authority structures, such as heads of communities, lineages and families, who tend to restrict women’s land rights in favour of men (Brown, 1994). In principle, customary norms in both matrilineal and patrilineal kin groups are designed to ensure that women are not arbitrarily deprived of basic resources for their production activities, but because of the lopsided control that men exercise over decisions concerning the allocation of resources, both at home and in the public sphere, there is considerable room for gaps to develop and widen between the norms and actions that follow. As far as cultural norms are concerned, Brown (1994) states that the economic crisis (1987-1992) contributed to the limitation of land tenure rights and inheritance rights through the female line. Population pressure and the continued inheritance of land by males have also made it very difficult for women to acquire land for farming and ownership of farmland remains extremely restricted to men.

In addition to land rights, there is a separate system of tree tenure rights. The rights of ownership and access to trees vary depending on whether the tree is naturally growing or planted. According to

the (Timber) Concession Act of 1962 all naturally growing trees are vested in the President in trust for the traditional chiefdoms and, therefore, farmers do not own naturally growing trees on their land. Planted trees however belong to the person who plants them.

6.2.2 Inheritance and land and tree ownership in the study villages

All tree-growing respondents had planted trees on their own land. As expressed by a FORIG researcher interviewed,

‘This is because the farmers are aware that planting trees on their land signifies ownership’ (interviewee 2).

Furthermore, as expressed by an FC officer interviewed,

‘The farmers feel more comfortable and secure when they own the land before they plant trees so they know the benefits will come to them and will not be shared amongst a group’ (Interviewee 6).

Inheritance is the chief mode of land acquisition in sub-Sahara Africa and that it is accompanied by strong, long-lasting private rights (Bruce and Migot-Adholla 1994). Within the villages in this study, both men and women derived their land ownership mainly through inheritance (Figure 6.1).

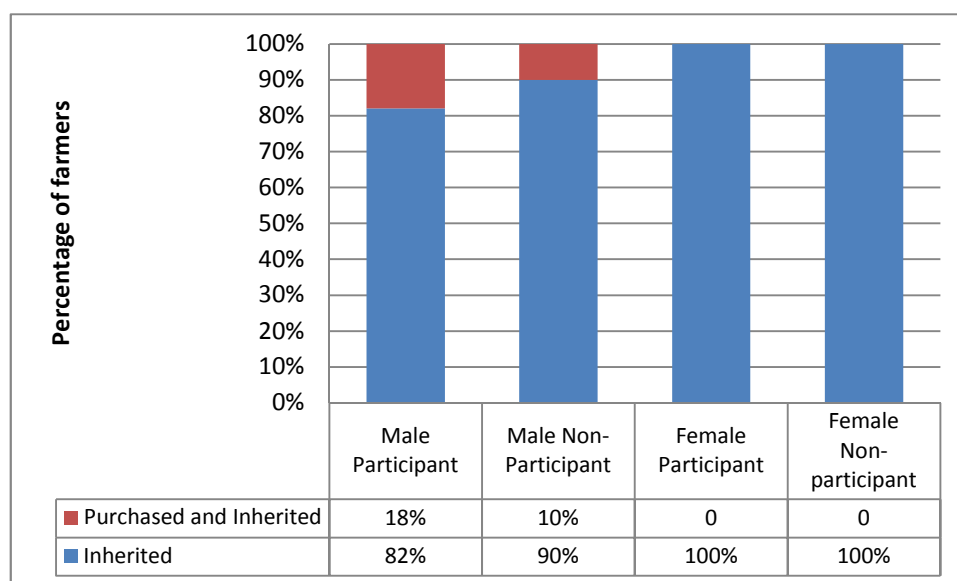


Figure 6.1: The percentage of participants and non-participants who have inherited land/ bought land.

Zhang and Aboagye-Owiredue (2007) express the view that farmers who hold secure land titles are more likely to participate in tree planting activities than those who do not. However, all respondents within this study own land, both those who planted and did not plant trees, which suggests that land ownership as such is not a decisive factor in determining adoption rates.

Figure 6.1 also shows that some male respondents have purchased as well as inherited land but no women have purchased land. There are no formal laws or customs which prevent women from purchasing land. However, studies conducted by Minkah-Premo and Dowuona-Hammond (2005: 17) show that relatively few women have access to the title registration system as their weak economic and social position tends to hinder their independent access to the land market because of the costs involved and the need for already accumulated capital.

The data in figure 6.1 suggests that both male and female participant and non-participant farmers in the study villages have secure land rights through inheritance and that land tenure as such is not a gender barrier to tree planting as every female interviewed owned land. According to Cotula (2002:42) male farmers generally inherit larger plots of land compared to females. Therefore, a closer look at whether plot size is a factor affecting gender differences in engagement in tree planting is needed.

Women's land rights are usually determined by male-centred kinship (Runger 2006). Even in matrilineal systems land rights are compounded by the nature of the control exercised by heads of families who invariably are men (Brown 1994:8, Quisumbing *et al.* 2001: 4 and Cotula 2002:36). Women's land rights are, therefore, restricted in the sense that smaller plots are allocated to them, in favour of men who receive larger plots. Usually rights to gain additional land have to be acquired through processes and practices such as clearing land and paying customary obligations and often women are less able to fulfil the conditions required to access such rights (Minkah-Premo and Dowuona-Hammond 2005:8). However, figure 6.2 indicates that in both female groups women are not restricted from inheriting large plots (25 acres or greater) and, in fact, more female non-participants (40%) have inherited larger plots compared to male non-participants (30%). Therefore, the land tenure rights of the women interviewed are not restricted and shown in figure 6.3 as some women own larger plots than some men.

A number of studies of smallholder farming communities (Place and Hazell 1993, Pender *et al.* 2004 and Nkonya *et al.* 2005) found an inverse relationship between farm size and productivity. They suggest that a small farm size is likely to have a negative effect on farmers' ability to plant trees, as all the land is needed to make ends meet and no land can be set apart for tree planting as that does not generate immediate income. This is further expressed by an FSD officer,

'It depends on the farmers' capacity; many smaller plot farmers will not go into tree planting as it's frustrating for them to plant trees and for 5-15 years not get anything in return. The trees would take up space on their land and would stop them from planting crops' (Interviewee 3).

Results from this study support this to an extent; figure 6.2 shows that among the interviewees the male participant group owns the greatest proportion of the largest plots (41+ acres). Contrastingly, 50% of the interviewed male non-participants own land smaller than 10 acres while 72% of male participants owned land greater than 10 acres with none owning less than 10 acres. There is a greater proportion of female non-participants with smaller plots compared to the female participants. Between these two groups female participants own the greater proportion of the largest plots (41+ acres) and land greater than 10 acres (83%) compared to female non-participant (70%). It can be observed that women are also not restricted from inheriting larger plots of land.

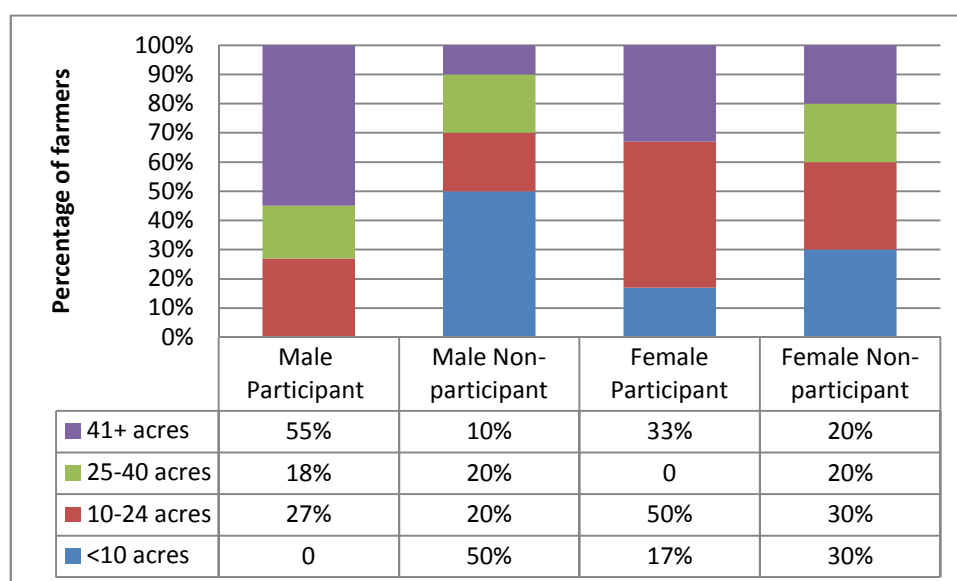


Figure 6.2 The size of plots of land owned by participants and non-participants.

Results from figure 6.3 show that both male and female tree growers with smaller plots (<10 acres and 10-24 acres) are planting trees alongside crops on all their land which contradicts Place and Hazell(1993), Pender *et al.* (2004) and Nkonya *et al.* (2005). In this study, 80% of tree growers with the larger land categories (25-40 acres and 41+acres), with the exception of 2 male farmers with 41+ acres, are not devoting all their land to planting trees. This corresponds with Alemu's (1999 in Holden and Yohannes' 2001:2) study in central and northern Ethiopia, which found that farmers with small farms invested more in their land compared to farmers with larger farms. He claimed that this lower investment on larger farms was due to their higher level of tenure insecurity as they were more likely to lose land in future redistributions. However, farmers with smaller plots can increase their tenure security if they plant trees. This may also explain why a number of owners of larger plots are non-participants.

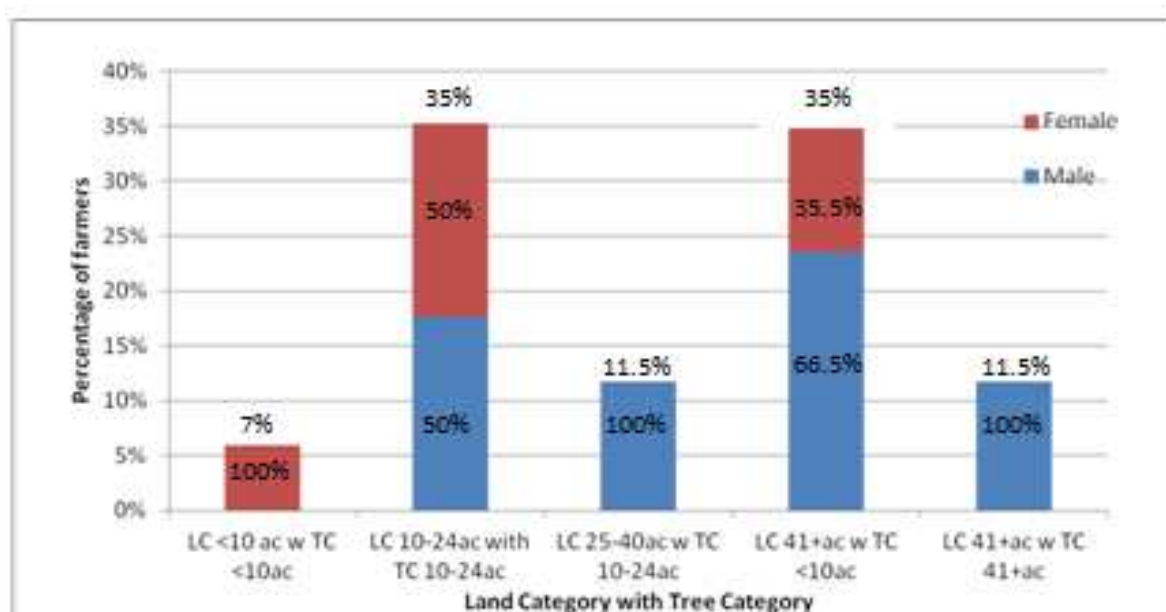


Figure 6.3 Size of land devoted to trees compared to total land size (LC =Land category, TC= Tree category)

Figure 6.4 shows that there are just as many non-participant farmers (male and female) than tree growers who consider the law as being favourable for planting trees. This law refers to the Act of 2002 (Act 617), which states that trees planted on farm land are the property of the landowner. This suggests that tenure insecurity is not an issue for non-participants and that there are other factors determining the adoption of tree planting among farmers (Insaadoo *et al.* in press). As far as tree tenure is concerned there appear to be no barriers.

It is noted that a slightly greater number of female farmers who do not consider the law to be fair. This may suggest that women face a little more insecurity over tree tenure than men. According to Minkah-Premo and Dowuona-Hammond (2005:8) one's ability to exercise one's rights is affected by factors including the sexual division of labour, production relations, land scarcity and ideology, which may affect women more than men. This will be further discussed in chapter 7.

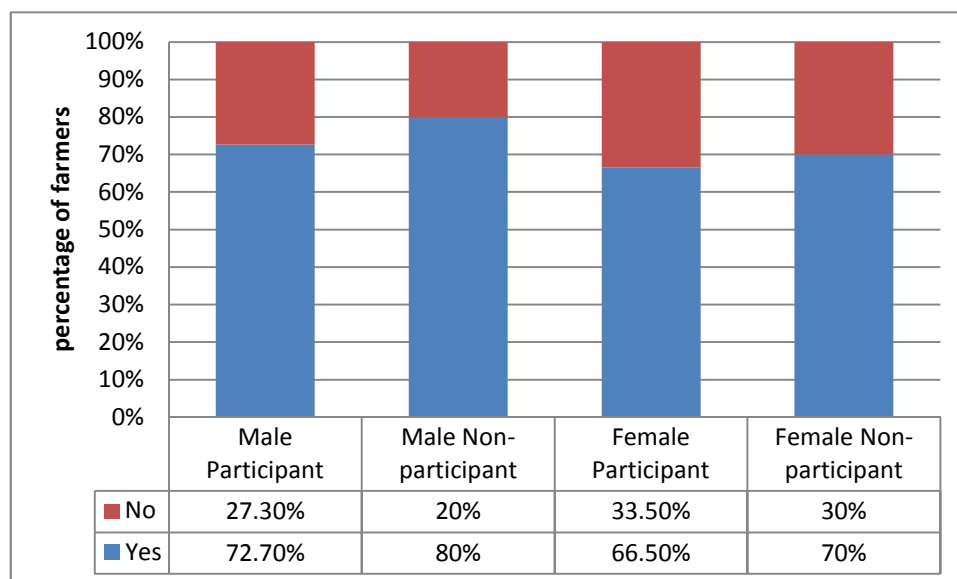


Figure 6.4 Percentage of respondents considering laws regarding tree tenure as favourable to tree planting.

6.3 Benefit Sharing Arrangements

The law in Ghana makes a distinction between naturally regenerated trees and those which are planted. The law is configured in such a way that ownership of land does not necessarily translate into ownership of the naturally occurring trees on that land. The right to the commercial exploitation of naturally occurring trees has always been vested in the state (section 16(4) 1962 Concession Act (Act124) (Osafo 2010:3).

The current legal basis for benefit-sharing of royalties for naturally regenerated trees, in both on-and off- reserves areas, is enshrined in Article 267 (6) of Ghana's 1992 Constitution complemented by Act 547 (Derkyi 2012). The law establishes that timber operators have to pay FC 50% of the stumpage fee as royalties. Office of Administrator of Stool Lands (OASL) takes 10% of the remaining 50%, which works out as 5%. Then, the remaining 45% is disbursed as: 55% to the district assembly; 20% to the traditional council; 25% to the stool landowner. This works out at 50% for FC, 20.2% for traditional council and stool landowners, 24.8% for District Assembly, and 5% for OASL (1992 Constitution, Chapter 21).

It remains a stationary offence to harvest without the state's consent (Timber Resources Management (Amendment Act, 2002 (Act 617) (Osafo 2010:3). The right to harvest naturally regenerated trees is granted by the FC in the form of permits which detail the area, the volume and species to be harvested (Nketiah *et al.* 2005). These permits are given to timber operators and not to the farmers on whose land the trees are growing. The efforts of farmers and communities' in managing off-reserve timber resources need to be given much greater recognition.

The law on the rights to planted trees has been amended in order to encourage afforestation, reforestation and private plantations. The amended section 4(3) of the Timber Resource Management (Amendment) Act 2002 (Act 617) prohibits the granting of timber rights on private forest plantations and land with trees grown or owned by private persons. If the trees are planted on the owners' land (family or purchased land) they are entitled to all the revenues from the trees planted. However, if the farmer took the land from the stool landowner or under sharecropping, then the necessary benefit-sharing arrangements are made. In the case of planted trees, the farmers have to obtain a harvesting permit before the trees are felled, and, after felling, the timber operator must obtain a conveyance permit in order for the transportation of the timber. The harvesting of planted trees is officially done by TUC (Timber Utilisation Contract) holders (timber operators who have a certificate to operate) and a tree farmer can officially sell his/her planted trees through a TUC holder.

Contacting the FSD is not a common practice in the off-reserve areas as often a more informal system of timber exploitation of planted trees through chainsaw logging operators takes place (Hansen and Treue, 2008). Chainsaw logging – the felling and on-site processing of logs with a chainsaw (Marfo 2010) is illegal in Ghana and is outlawed for being inefficient and difficult to control. As a consequence, these small-scale operators do not hold official timber utilisation contracts, harvesting permits or conveyance permits and they are usually untrained, which leads to wasteful practices and environmental damage (Grisley 1998). They normally negotiate timber sales with individual farmers over both naturally regenerated and planted trees. In this way, (in contrast to dealing with Timber Utilisation Permit holders), farmers gain some income from naturally regenerated trees. The same practice is applied with regard to planted trees as a way to circumvent the bureaucracies of obtaining a permit. During field observations, a farmer (aged 60) had a few large mature teak logs from trees planted on his land. He said:

'I will get no more than 10 cedi for each, this is the price the contractors are offering, it will go no higher than this, but I will not contact the FSD because I will get less.'

When it comes to harvesting of planted trees many of the farmers stated that they wouldn't contact Forest Services Division (FSD) during this process. As one male farmer stated, aged 67:

'There are too many laws and regulations and I'm worried about losing out on my rights to my own trees. They don't normally visit unless they are compelled'.

Another male farmer aged 45, who has planted trees on his own farm, stated:

'The processes involved in applying for a permit takes too long and I would miss the season for harvesting, it's just easier to get a contractor in to harvest my trees'.

For women the procedure is even more cumbersome. As a female officer from FC stated:

‘There are no gender differences when harvesting trees [However] the farmers must apply for the permits in Kumasi, would the farmers really take the time to travel to register? This journey would prove even harder for female farmers with their other duties’ (Interviewee 1).

It seems common practice that women contact the operators through male family members when they deal with them for the first time, and the family members negotiate prices on their behalf. One female farmer, aged 52, stated:

‘When I sold my planted trees for the first time my husband and sons did the negotiations, but now I know the prices and can do it myself’.

According to the new Forest and Wildlife policy 2012 (Ministry of Lands and Natural Resources forthcoming: 21), which will be released this year, the government will aim to provide women with training that will allow them to meet ‘their objective and assume optimal management responsibilities’. It is, therefore, necessary to investigate the external support already provided to the farmers and determine if there are any distinguishing gender factors.

6.4 External Support

Insaadoo *et al.* (in press:16) found that outside support in the form of occasional supply of seedlings and regular technical advice from the FSD, an NGO or a timber company is crucial in the success of tree planting. As one male researcher from Tropenbos stated:

‘it is the FSD’s duty to help and guide the farmers to plant trees... but this does not happen because they are more interested in their own forest reserves’ (interviewee 9).

This parallels with what an FSD officer stated:

‘Our advice is demand driven, but it is up to them as it is with us to make contact’ (interviewee 3).

The same researcher from Tropenbos stated that:

‘In the beginning the FSD tried to make general encouragements and helped the farmers organise themselves. But after about 2-3 years they left the farmers on their own to do it themselves and took the view that if the tree planters needed their advice they would contact FSD’ (Interviewee 9).

When the focus groups were taking place, the farmers were concerned about an FSD officer being present in case some payment would be sought. This is consistent with what was stated by a female tree-grower in the mixed focus group:

‘Currently when a farmer calls such people s/he has to pay for their services’.

Currently there is no legislative instrument which allows the FC to charge for management fees in off-reserve areas, other than the 50% benefit share from royalties from naturally regenerated trees. Charging for FSD extension services is therefore illegal and ‘a violation of Forest Ordinance’ (Katakó 2005: 24 cited in Nketiah *et al.* 2005). Farmers respond to this injustice by ‘a culture of conspiracy’ (Amanor 2005: 16 cited in Nketiah *et al.* 2005), excluding FC from the knowledge of their timber management and defying laws as an act of resistance.

6.4.1 Extension services

The functions of the FC include assisting the private sector and other bodies with the implementation of the 1994 Forest and Wildlife Policy, by providing free advice and technical services for resource protection, management and the establishment of forest plantations (Boakye and Baffoe 2006). As one FSD officer in Accra stated:

‘We have to train people in acquiring the skills in planting, and access to information is part of the training. One area we are encouraging is health and safety and we are taking good care of that. Motivation, health and safety, then you ensure that they will participate’ (Interviewee 6).

However, during the focus groups all three groups stated they don’t ask FSD to come anymore due to the fees previously charged, even though they are aware that FSD are supposed to give farmers free technical guidance in tree planting.

Furthermore, the female group claimed that neither the FSD nor any other organisation give farmers advice about tree planting. This is confirmed by answers to the question about the source of tree planting knowledge.

Figure 6.5, revealing the source of knowledge among tree growing farmers, shows that the majority of men were taught tree grower skills by the FSD or the Ministry of Agriculture, who seem to be targeting men only as none of the women indicated they had learned these skills from professionals. They acquired the skills either as self-taught or learnt from a friend/neighbour. Women’s skills in tree growing are seriously lagging behind compared to men’s.

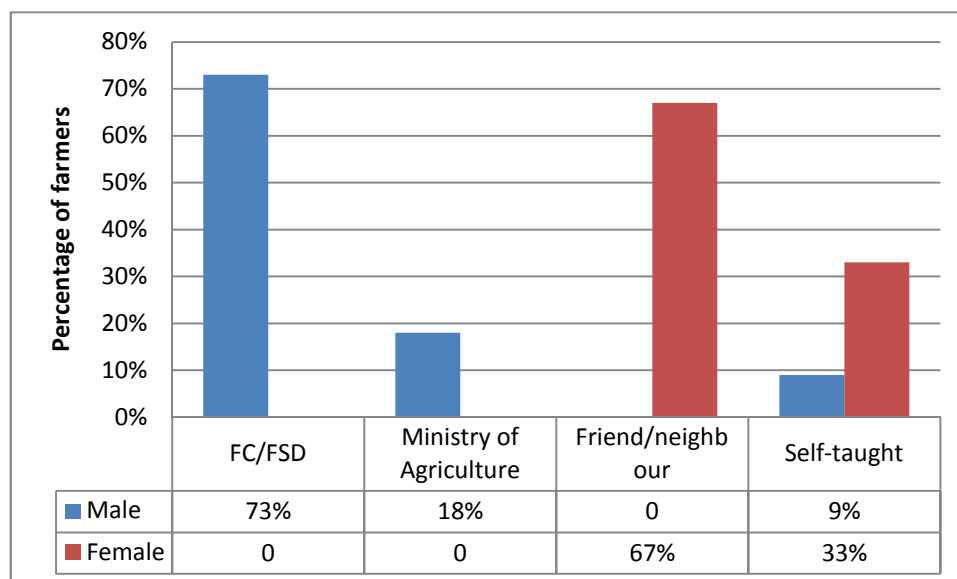


Figure 6.5 Source of knowledge and skills about tree planning among tree growers (n=17)

6.4.2 Extension services through PADO: sharing of ideas and techniques

Within the Offinso Forest District there is a tree growers group called PADO (Private Afforestation Developers Organisation). This association meets every first Sunday of each month and those who attend participate actively. The farmers come together to share techniques and ideas but, most importantly, the association is the link between the tree-growing farmers and the FC. The FC and NGOs provide farmers with tree seedlings and extension services through the PADO. As stated by an male ordinary PADO member,

‘If there are free services from NGOs you must be in the group to get some’.

Results from the survey show that attendance is gender-biased. The gender balance of participating tree growers among the interviewees is similar to the proportion of female tree growers in whole Offinso District; the participation rate among tree-growers is much lower for females (16%) than for males (91%).

This seriously limits women’s ability to access extension services. The main reason given by most of the female interviewees was that their husbands are attending on their behalf and that they don’t have the time to attend. However, it is interesting to note that the one female who was attending was an executive member, while of the nine males who are attending, eight are ordinary members and one is the chairperson of the local (Nkwaankwa and Nkenkasu area) PADO. When asked to indicate their level of desire to participate in PADO all females stated that they are not interested in attending, while the men’s answers varied but with the majority (72%) stating that they are strongly

interested in attending . One of the main reasons for the low interest in PADO amongst the women is, as one female executive member (aged 45) stated:

‘There are lots of promises but nothing is ever heard’.

This could explain why women lack interest in PADO while male’s involvement could be explained by the statement from a male ordinary member:

‘If there is one group we all have a common aim but with the same problem so we can help each other.’

Furthermore, the Chairman stated that he is strongly interested only because he doesn’t want the others to give up. He says:

‘The FC is not helping and all the members are losing faith in the group, I must stay interested for the others not to lose hope’.

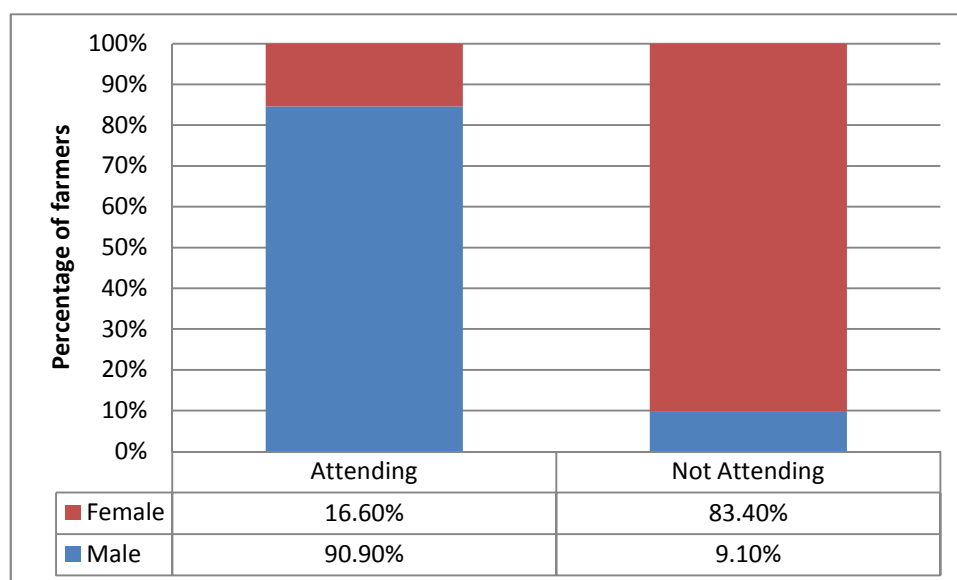


Figure 6.6 Tree growers’ involvement in PADO.

6.4.3 Financial support

Insaadoo *et al.* (2012: 1) state that ‘farmers in Ghana are facing several challenges in the implementation of these on-farm planting schemes, with suboptimal livelihood benefits being the result’. They cite these challenges as the ‘extra work and costs involved in tree planting and maintenance, the absence of short-term benefits due to the time gap between investment (planting and weeding) and profits (from harvesting) and the bureaucratic procedures to obtain loans for tree planting’ (*ibid*). Many of the farmers interviewed worry about their future financial stability as they have devoted all their money and land to combining tree planting with food crops. They can only

receive crop profits for a maximum of 5 years before the canopy closes. A male farmer expressed his desperation about the lack of profits as follows:

‘My friends laugh at me for going into tree planting; now I just want to cut them down but I can’t because I have invested too much’.

Results from the survey show that 100% of women and 73% of men, have completely self-financed tree planting, by using money from selling food crops or petty trading. Only one man has received a loan and two men have received free seedlings from Tropenbos International Ghana. All participants indicated that it is very difficult to obtain any credit as the banks are not willing to support them because of the long gestation period of trees and risks to tree planting like fire and timber theft.

One male PADO member, age 41 years, said,

‘The government has encouraged us to plant and now they can’t support us. Although there is the government support of the Forest Plantation Development Fund Board, for which both men and women can apply and although the size of your land for tree planting must be more than 10 acres, which most of us have, it’s still very difficult to get.’

Results show that the Forest Plantation Development Fund is not a reliable source of funding and even less so for women as 50% of women will not reach the requirements for the loan.

Table 6.1 The proportion of farmers who meet the requirements for the Forest Plantation Development Fund.

	Farmers with more than 10 acres of trees	Farmers with less than 10 acres of trees
Male	63.5%	36.5%
Female	50%	50%

Furthermore, women seem more restricted from obtaining credit than men with many of the women indicating that they wouldn’t know where to ask for a loan for tree planting and that they husbands dealt with household finance. This can be demonstrated using the words of a female FORIG researcher:

‘Women are not that bold to go for a loan...in the Ghanaian setting the men are the head of the household so you can’t do anything without the approval of your husband, any loans will be in the husband’s name’ (interviewee 2).

6.5 Conclusion

This study shows that, within the villages, land tenure security is not an issue for non-participants as it was observed that all respondents owned land. Land inheritance was the main form of acquiring land, which gives farmers strong rights over their land. It was observed that non-participants in general had smaller farm sizes in comparison to participants with the same gender. For those non-participants with smaller plots their financial capacity to invest in a long-term project such as planting trees may be limited. However, there is a large number of both male and female non-participants with larger plots. This lower investment on larger farms may be a result of higher levels of tenure insecurity (Alemu's 1999 in Holden and Yohannes' 2001:2).

Furthermore, participants faced many difficulties which determine whether they can plant trees. These included negative perceptions of the legal benefit arrangements, poor relationship with the FSD and a lack of funds and financial support. Female participants face a further difficulty because of their lack of exposure to extension services. This is a result of their poor attendance in the PADO association; one of the main reasons for this is due to gender differences. The next chapter, therefore, will investigate the effect of a gender order within society which may limit women's involvement in tree planting.

7 Explaining gender differences using the concept of gender order

Many studies have shown that women face greater tenure insecurity and that their rights over land and other farm resources are inferior to those of men (Lastarria-Cornhiel 1997; Meinzen-Dick *et al.* 1997; Place 1995; Walker 2002). It was found that (figure 6.3) women in Nikwaakwa and Nkenkaasu do own land and that some women have larger plots than some men (figure 6.3) but in general, women as a group have smaller plots compared to men which tends to limit the area they can devote to tree planting. However, figure 6.3 shows that women with smaller plots are just as productive in their investment as men with the same size of plots. It was found that the proportion of women with larger plots had invested less compared to the proportion of men with similar sized plots. Even though women are clearly planting trees on their land, it was found that the initial decision to plant trees on their land was made by their husbands. It was also found among the women interviewed that they each had an obligation through marriage to provide their husband's farm with labour before attending to their own. Furthermore, the large number of female household tasks limits their time available to plant trees. As a result they are participating less in tree planting schemes compared to men. This chapter will use Varghese and Reed's (2011) conceptual framework of gender order to analyse how on-farm tree planting is dominated by a masculine gender order that separates men and women, which causes differences between male and female tree growers and which favours male tree growers over female.

7.1 Organisational culture

"It is a common experience as a researcher to be struck by the pervasively masculine or pervasively feminine atmosphere of the surroundings which convey a greater or lesser acceptance of the values of either gender" (Gherardi 1995: 11).

The ethnicity of the villages is Akan which follows the matrilineal system. This system is supposed to give Akan women in Ghana genuine authority over inheritance rights and it is at the core of the political structure in kinship within the villages (Arhin 1983 cited in Mikell 1988:657). However, in Ghana the matrilineage head is usually a male and it is he who represents the lineage in the Council of Elders and administers lineage property. This male dominance is transmitted from a masculine organisational culture of society (Vercrujisse 1988 cited in Lastarria-Cornhiel 1997:1323). This gender hierarchy follows a traditional acceptance of gender roles which stress masculine dominance in the society and also within the family. Women's rights to inheritance are determined by her relationship

with her male family members and if this is not good she could be denied her right to inheritance (Minkah-Premo and Dowuona-Hammond 2005).

As defined in Chapter 2, organisational cultures refer to 'shared values and norms that guide behaviour within an organisation and between the organisation and others' and it can be highlighted as a significant barrier to change (Newman 2005:10). Although Ghana's gender policies initiatives convey a sense of equal opportunity with an aim of mainstreaming gender (see Section 4.2) their culture may be resistant to change and reluctant to alter what is regarded as the 'proper place' for women within a framework of male dominance. Ghana is a very religious country (with only 6.1% of the population being non-religious (CIA 2012) and all respondents stated that they are either Christian (59%) or Islamic (41%). Faith-based traditions in many religions place a high value on the role of the traditional family as a fundamental unit of society and on women's and men's roles within the family. In Christian traditions there is a high emphasis on the role of mother in the family, while Islamic traditions emphasise family as the integral part of the faith. They both recognise gender differences between women and men and purport to suggest roles for them that are pertinent to their life cycles, which are then transmitted to the next generation (Syed 2010:287). Participation in tree planting schemes mirrors farmers' cultural arrangement where men dominate the activity and then invite women to participate. Despite a focus on gender being within the objectives of the new Forest and Wildlife (2012) policy (Ministry of Lands and Natural Resources forthcoming) currently being drafted, it may prove difficult to achieve this because of the deeply entrenched family arrangements based on a sexual division of labour reflecting traditional views about the appropriate male and female roles.

7.2 Rules of entry

Rules of entry which determine a farmer's participation in tree planting are their ownership over land and their ability to efficiently invest in their land. Every participant, male and female, owned land, but the initial decision to plant trees within every household was made by a man (household head) and not one female had begun tree planting of her own accord (see Chapter 5). Therefore, the main rule of entry in tree planting is determined by the gender relations within the household. The male heads have a stronger control over household resources than the female spouse and, therefore, it is men who make the decisions over how household resources are to be managed and used, even on their wife's land. If a woman had planted trees on her own land the initial decision to do so came from her husband and it was found that if a woman was tree planting on her own land her husband was also tree planting on his but a woman would never be tree planting while her husband was not. Therefore, tree planting in Nikwaakwa and Nkenkaasu is

determined by a masculine organisational culture which determines women's nominal or effective participation and reproduces gender inequality – even if unintentionally (Varghese and Reed 2012). Women still hold the traditional role as carer and when they are invited into farming they retain the main task of household work while their farming workload increases.

Another way a woman enters into tree planting is through her obligations to assist her husband on his land. Female respondents stated that while owning their own farms they also farm on their husbands' land. As one female farmer, aged 53, stated:

'Marriage is a team, as a wife I must first help my husband, then I have time to attend my own farm'.

This is further reinforced by the social norms and perceptions of customary laws in marriage which ensure a division of ownership of property and resources and impose a strict sense of duty for wives to assist their husbands in their economic activities, but men are not obliged to help their wives on their farms (Meinzen-Dick *et al.* 1997). This affects the amount of labour and time women can spend developing their own farms.

7.3 Social norms and perceptions

"Gender as a structure of binary opposites has been the most potent of all symbols of differentiation. (...) The cultural production of male and female symbolic universes has entrenched belief in the universal essences of masculinity and femininity" (Gherardi 1995: 11).

Gender relations are determined by underlying social norms and perceptions and they explain the gender disparity which exists within society and reinforce the division of labour and the rules of entry into tree planting. They determine the roles that women and men have in the family and the community. 'They shape individual preferences and power relations between the sexes and they dictate the type of work considered appropriate for women and men' (World Bank 2001: 109).

When questioning, the men were less concerned than the women with what was going on within the household. According to Gherardi (1995) households are the first place of gender socialisation where these roles are acted out. Wives help their husbands run the home, family and farm; the husbands are in a higher power position which gives them greater influence over decisions. It is this arrangement which gives the impression that on-farm tree planting is strictly a man's business and explains why men participate more in the PADO (figure 6.6) as they are the dominant family member who represents the family. Due to women's subordination and dependent relationship with men their direct stake in tree management is through their husbands. As noted by Kiptot and Franzel (2012), (referred to in chapter 5) the wife is expected to seek the consent of her husband with any plans which would affect the household. This marginalises women's participation

and interests and limits their ability to make the initial steps in tree planting even though respondents stated that the PADO is open to anyone who wants to join and opinions are taken on board if they are valid. Few women attend which limits their ability to voice their opinions and receive extension services.

7.4 Rules of practice

“Gendered processes are concrete organisational activities, both material and ideological activities, ‘whereby advantage and disadvantage, exploitation and control, action and emotion, meaning and identity, are patterned through and in terms of a distinction between male and female’ (Acker 1990: 146 in Gherardi 1995: 18).

These organisational cultures both establish and institutionalise gender positioning, frequently with the effect of “keeping women in their place” (Gherardi and Poggio 2001: 246). According to Newman (2005):

“This traditional culture is based on a mix of administrative and professional discourses each delivering its own language, imagery, values, relationships and ways of doing things. Each offers particular identities within a hierarchy of clearly defined status position of male supremacy” (Newman 2005: 14).

Gender roles within the villages follow the traditional roles which emphasise women’s childbearing functions and household duties and men’s greater physical strength and their need to protect the family. The traditional feminine role is essentially the complement of the masculine role. Farmers treat the process of tree planting as an agriculture cash income-generating process, less suitable for women, which parallels the gender stereotype of men as active and women as passive and submissive (Cox 2008:101) As stated by a male participant in the male focus group:

“Men control the use of the land, even if a woman has land it’s controlled by her husband or sons. Men are more active because men are stronger”.



Photo 3: A mother performing her household duties while her husband is farming.

This male oriented focus affects the level of importance attached to women involvement in tree planting. Even widowed women stated they received a large amount of help from other members in their family and this would suggest that they are still subject to the influence of a male member of their family.

When asking the villagers what they considered would be typical male and female household tasks, many of them, particularly males, found the very question comical, thereby displaying their amusement at any questioning of what they regarded or perceived as the natural order. Women continue to fulfil the gender roles which tend to marginalise them because these gender relations are considered to be inherently natural. As Gherardi (1995) describes it:

“Being part of a culture has often been compared metaphorically to a fish living in water: fish not only find it ‘natural’ to move through their element but they are also the last to notice the water through which they are swimming” (Gherardi 1995: 12).

Similarly the community members see gender divisions as a natural process of the culture they live in and little meaning will be attached to the disparities in participation between men and women because this is seen as being ‘natural’. Women’s participation in tree planting is thus determined by their husbands because this is seen as fitting into the stereotypical male and female gender roles.

7.5 Division of labour

“Socially determined ideas and practices define the roles and activities which are deemed appropriate for women and men. This results in context-specific patterns of who does what by gender and how this is valued” (Reeves and Baden 2001: 4).

Men and women perform multiple roles in society, as both are involved in productive activities (oriented towards generating income in cash or in kind), reproductive activities (childbearing and domestic tasks oriented towards maintaining the workforce) and social activities, including community politics⁵. The nature of the productive tasks carried out by men enables them to engage in other activities whereas the reproductive work carried out by women is more continuous and therefore there is an on-going demand of their time which restricts their ability to participate in activities such as productive work or community politics and often leads to ‘trade-offs between their non-productive and productive roles’ (Moser 1993 cited in Duncan and Brants 2004:4).

⁵ Reproductive tasks comprise childbearing/rearing responsibilities and domestic tasks. Productive tasks comprise work done for payment in cash or kind and include both market production with an exchange-value, and subsistence production with an actual use-value (Moser 1993).

7.5.1 Gender division of productive labour

Tree maintenance is thought to be a male farming task amongst female farmers. 50% of female participants listed tree harvesting, and fewer female non-participants listed tree planting, as a male farming task. The results of this study indicate that the maintaining and harvesting of trees does not feature highly on the list of tasks carried out by females. Tasks in tree growing that are generally considered to be male include land preparation, pegging, peg cutting, weeding, pruning and the hiring of male labourers. Tasks considered to be female include seedling production and weeding. While 36% of males stated that there were no particular tasks that were female, 81% of males and 83% of females stated that seedling production, peg cutting, pegging and tree planting were performed together. This indicates that there is a huge overlap of tasks when it comes to tree growing and that the only gender-specific tasks are pruning and the hiring of male labour which are seen as male tasks with all other tasks being gender-neutral. As Reeves and Baden (2000) state:

“Gender divisions of labour are not necessarily rigidly defined in terms of men’s and women’s roles, as is sometimes assumed. They are characterised by co-operation in joint activities, as well as by separation” (Reeves and Baden 2000: 8).



Photo 4: Male tree-grower pruning his teak trees.

The majority of men were doing only farming while just under half combined farming with another job; the majority of these were male non-participants. Their range of jobs included contractor, animal rearing, electrician, carpenter extension officer (participant). Only a few female farmers had another job which consisted of selling second hand clothing.

7.5.2 Gender division of responsibility for generating cash⁶ income

“Separate budgets seem to be the norm and spouses often have separate spheres of responsibility for both production and expenditure. In many parts of sub-Saharan Africa wives bear primary responsibility for household food security, while husbands bear primary responsibility for cash income (World Bank 2001: 151).

Within households in Nikwaakwa and Nkenkaasu husbands and wives indeed manage their own plots and husbands do have the primary responsibility for cash income. However, there are differences between male and female tree planting households and male and female non-tree planting households when it comes to the division of labour in earning cash and non-cash income.

More male participants receive help from other household members compared to male non-participants while more male non-participants hold total responsibility for earning cash income (see Figure 7.1). This division of labour may give male participants the upper hand over non-participants and the greater help received gives them more time to plant trees. As tree planting is a cash income-generating task, the husband will take the decision to plant trees on his land. Female participants have a share in cash income responsibility which gives them more of a stake in tree planting (Figure 7.2). In the case of female non-participants their husbands hold primary responsibility for bringing in cash income while they help (Figure 7.2).

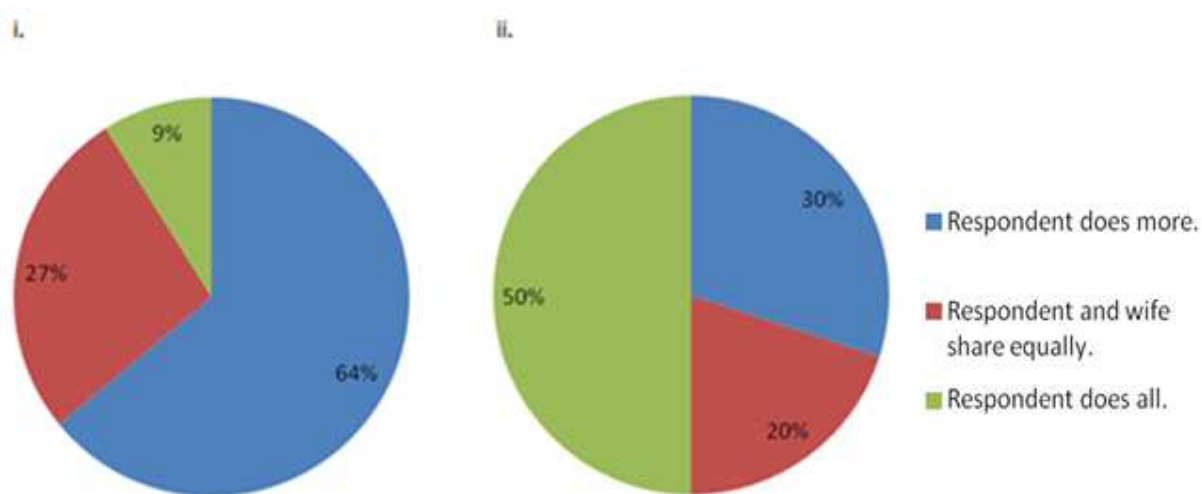


Figure 7.1 i. How male participants' family members contribute to household cash income.

ii. How male non-participants' family members contribute to household cash income.

⁶ Cash income includes sales, money wages or salary income. Non-cash income includes outputs consumed at home e.g. subsistence crops to feed the family (Horstkotte-Wesseler 1999:81)

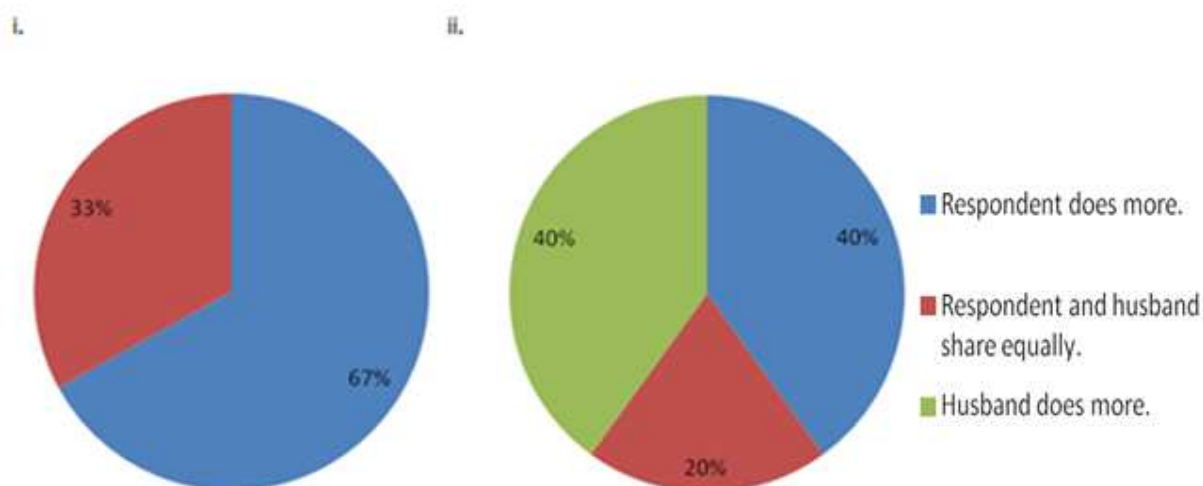


Figure 7.2 i. How female participants' family members contribute to household cash income.

ii. How female non-participants' family members contribute to household cash income.

Ardayfio-Schandorf (1992) has shown that “although women share in the economic responsibilities in the household, they are invariably left out of the mainstream of the decision-making process” (cited in Brown 1994: 23). This was the case with the female tree growers in this study as they were more involved in the household cash income and were not involved in the initial decision to plant trees (see chapter 5) (Figure 7.2). The reason for their being a large proportion of respondents doing more in female participant households was because these women were widowed and had taken on the responsibility of cash income generation which was initially their husbands' responsibility.

7.5.3 Gender division of reproductive labour

The responsibility of reproductive labour lies heavily with women. Respondents were asked what they considered as typical male and female household tasks. Cooking, sweeping, washing, caring for the children and fetching water were considered by all respondents as women's tasks. Giving directions and pounding fufu⁷ were viewed as men's tasks. Some male participants stated that their tasks included fetching water and sweeping, which shows some overlap of jobs generally considered to be stereotypical female tasks. Some men said they carried out no household tasks.

7.5.4 Gender division of responsibility for non-cash income

According to male participants their wives hold primary responsibility for non-cash income, which gives males more time to devote to earning cash income e.g. from tree planting. Based on the survey, Figure 7.3 shows that there are more male non-participants holding primary responsibility

⁷ Fufu is a staple food in Ghana and other West African countries, which consists of a dough-like substance made of boiled cassava, yam and/or plantain.

for non-cash income which limits their time for generating cash income i.e. tree planting. Female participants' responsibility for non-cash income is shared with other family members (see Figure 7.4) giving them more time to generate cash income i.e. engaging in tree planting. However, female non-participants hold primary responsibility for non-cash income (Figure 7.4) so they have less time for cash income-generating activities such as tree planting.

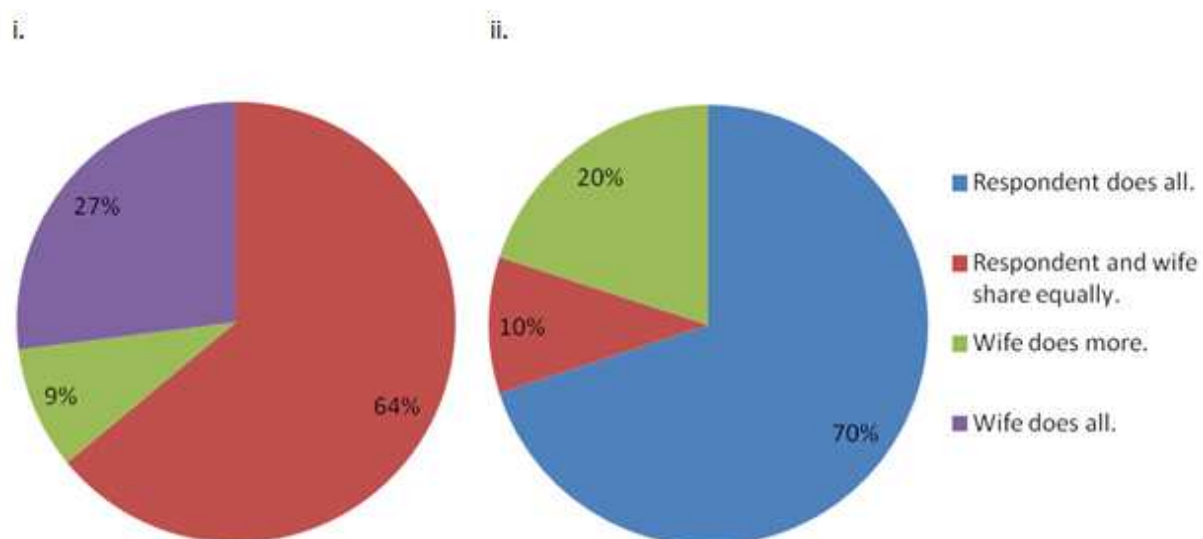


Figure 7.3 i. How male participants' family members contribute to household non-cash income.

ii. How male non-participants' family members contribute to household non-cash income.

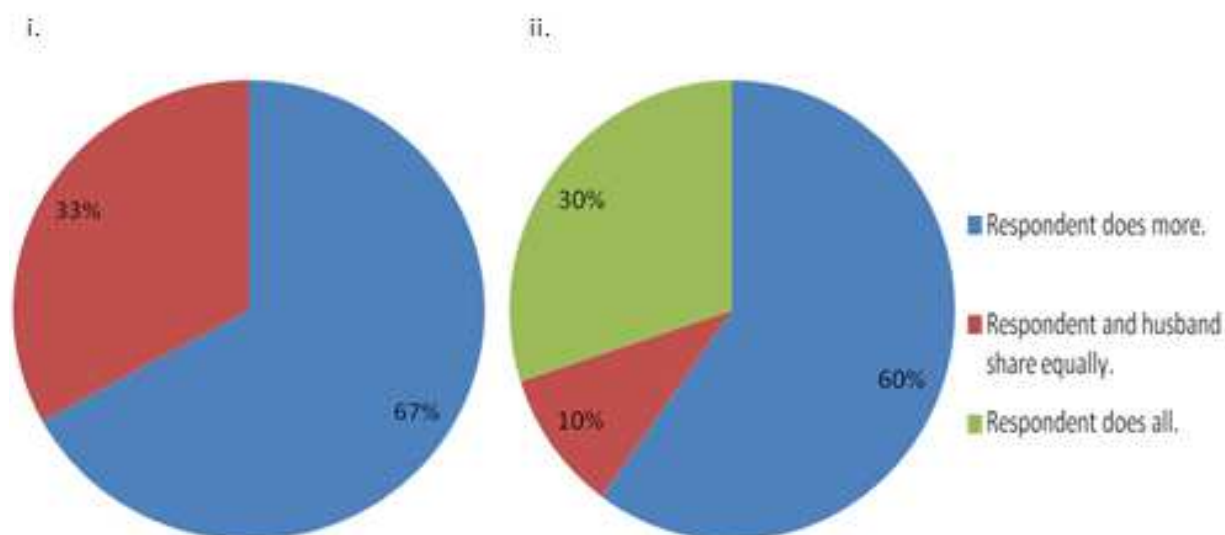


Figure 7.4 i. How female participants' family members contribute to household non-cash income.

ii. How female participants' family members contribute to household non-cash income.

Shared responsibility for both cash and non-cash income is greater in households where women plant trees, compared to female non-tree growers, (Figures 7.2 and 7.4) which gives these

women more time for tree planting. Female non-participant households seem to be more traditional as they hold more responsibility for non-cash income and less for cash income.

7.5.5 Gender division of social tasks

There are few differences between male and female social tasks. The majority of respondents attended church, church meetings and performed communal labour. Only 2 male participants attended village meetings⁸ (the PADO chairman and the chief). However, if a female is engaged in tree planting, her husband is also tree planting and he is the one who is attending the PADO meetings on behalf of the household.

7.6 Personal endowments and attributes

Personal endowment and attributes include property status, educational level, age, marital status, etc. (Chapter 2). Some of these affect participation in tree planting to a greater or lesser extent.

Land property is considered key to tree planting as:

“Secure tenure encourages investment in a resource which leads to higher productivity and efficiency in its use and ownership” (Meinzen-Dick *et al.* 1997: 1304).

Most land of the respondents is inherited and as these villages are within the Ashanti region they practise a matrilineal system which grants the same right for men and women to own and plant trees on private land. However, many authors have argued that in matrilineal societies women do not necessarily possess inheritance rights (Kiptot and Franzel 2012: 35; Quisumbing *et al.* 2001). Everyone interviewed had inherited land, but in general women’s land size is a lot smaller than men’s which suggests that their inheritance rights are to some extent weaker. Furthermore, women are less able to expand their land through clearing new land as a result of which they usually own smaller plots of land compared to male relatives (Minkah-Premo and Dowuona-Hammond 2005).

Another reason for women devoting less land to tree planting is that women in Ghana normally have obligations to provide labour for male-controlled fields (Abbas 1997). This means that they must help their husband tend their lands before tending their own. This could explain why many women stated that marriage is a team and that they support their husbands in tree planting and why many women have less land devoted to tree growing compared to men. However, men do not hold any obligation to assist their wives on female-owned lands. Although some female participants

⁸ In the Ashanti Region it is common practice that the chief of the village will assemble the community members together to deliver information or for issuing assignments such as communal labour or environmental stewardship (Boakye 2002).

received help from their husbands to initiate tree planting on their farms, it seems that they do not receive further help with subsequent tasks related to tree growing.

Interestingly, the proportion of women (81%) who consider land acquisition to be fair between male and female farmers and consider that their inheritance rights are not restricted is larger than among male respondents (19%). Of the male respondents, 81% acknowledge that land acquisition by women is limited compared to men's. These different perceptions could either result from a male bias that considers that woman's land rights as being unequal because of their position in society and because women accept their marginalisation as natural.

Literature (Chambers and Leach 1989, Godoy 1990, 1992, Deininger *et al.* 2006) suggests that those with established land rights are more likely to be involved in tree planting. However, the female non-participants own land and yet they are not involved in tree planting. According to Kiptot and Franzel (2012) women remain disadvantaged in the agricultural sector due to cultural, sociological and economic factors. These include limited access to resources and household decision-making, finance, extension/ information and labour. Furthermore, there are social norms which hinder or even prohibit women from undertaking certain activities (e.g. in northern Ghana it is forbidden for women to own land) and it is these other factors which often limit women's ability to plant trees. According to the male and female non tree-growers in this study, it was a lack of funds which prevented them from engaging in tree planting.

One interviewee expressed concern over the lack of title deeds for widowed women in respect of her husband's land. The new Intestate Succession Law (PNDCL 111) in Ghana adopted in 1985 ensures that some land does go to wives and children upon the death of a husband or father, thus promoting formal legal equity of access (Awusabo-Asare 1990; Minkah-Premo and Dowuona-Hammond 2005). Two widowed respondents stated that they had inherited land from their husbands and these women owned 41+ acres. This situation relating to spousal inheritance was explained by a researcher from Tropenbos,

"When its husband's land a woman will not take an active role in tree planting unless the man informs the family and the trees are planted based on shared cropping, the wife then fully participates in the establishment of the plantation, this means that she will be involved in the acquisition of her husband's land in the event of his death" (Interviewee 9).

The educational status of men within the villages was higher than that of women, but only 19% of all men interviewed had secondary school education, compared to no women, while 44% of all women interviewed had no education compared to 14% of all men who had none. Although

the male participant group had the greater proportion of those with formal education (90%) and the least with no education (9%), the proportions of formally educated within the groups of male non-participants (80%) and female non-participants (70%) were quite high. Furthermore, the male non-participant group had the greatest proportion of secondary educated. It can, therefore be stated that education did not affect the male or female rate of participation.

Age did, however, affect participation. It can be observed that the proportion of farmers aged 50 + years was greater in both male and female tree grower groups. While the proportion of farmers aged between 30-50 years was greater in both male and female non-tree grower groups. This means that farmers of an age of 50+ years were twice as likely to participate in tree planting compared to farmers aged between 30-50 years who were twice as likely not to participant.

Table 7.1 Age groups of tree growers and non-tree-growers.

		18-30 years	30-50 years	50+ years	Mean age
Male Participant		0	36%	64%	51 years
Male	Non-participant	10%	60%	30%	43 years
Female Participant			16%	84%	63 years
Female	Non-participant	10%	70%	20%	48 years

It was evident from the results that marriage was the female tree grower's gateway into tree planting. Women's ability to plant trees on their own land is also affected by their marital status. Women who are married have attendant domestic obligations which in practice reduce their opportunities to invest in their land. According to local custom, a woman is under an obligation to assist her husband on his own land. (Minkah-Premo and Dowuona-Hammond 2005: 8) As one female farmer stated:

'I first must help my husband then I get time to tend to my own trees,'

This reduces her time to be able to invest in her own land. Men's ability to participate is also affected by marriage, in that, if they receive help from their wives with non-cash income activities related to food security and reproductive activities, they can concentrate on productive and cash income-generating activities such as tree planting.

7.7 Conclusion

This chapter has presented evidence from the villages of Nikwaakwa and Nikenkaasu to show how gender differences occur in tree planting using the concept of gender order. It showed that despite women having land rights their productivity in tree planting is controlled by a masculine gender order. The organisational culture is based on a very religious and traditional social order which emphasises the role of the male as provider of cash income and the female as carer within the family. On-farm tree planting mirrors this organisational structure of the family and thus women are invited to participate in tree planting via their husbands. What was interesting was that the division of labour was different between households participating and not participating in tree planting with participating households breaking away from the traditional division of cash and non-cash income-generating tasks which were more often shared amongst its members. This helped these households take on the additional tasks of tree planting. In male non-participants' households cash and non-cash income responsibilities were often too high to justify the added responsibility of tree planting.

Finally, this chapter drew attention to the personal endowments which can shape men and women's ability to engage in tree planting. It was found that tenure security as such did not affect gender differences in participation in tree planting but that differences in land sizes did; that educational level had no effect on participation rates, but that age had, as participants were found to be more likely to have become involved in tree planting if they were in the age bracket of 50+. Marriage had a significant effect on women as they were more likely to participate in tree growing if their husbands were also participating. Furthermore, if men received help from their wives with both cash and non-cash income-generating activities they had more time available to engage in tree planting.

8 Conclusions and recommendations

This chapter provides a summary of the research findings in relation to each research question and, by so doing, seeks to address the main research question, which is, “*What factors explain differences in gender participation in on-farm tree planting schemes in the off-reserve areas of Ghana’s high forest zone?*” It also points out the relevance of this research in respect of the on-farm tree planting schemes and it will then reflect on the relationship between the research findings and the theoretical framework. In conclusion, it will provide suggestions for further research and recommendations for policymakers.

8.1 Summary of research findings

This section answers the research questions which were formulated in Chapter 1.

8.1.1 How are on-farm tree planting and gender governed in terms of the overall policy framework in Ghana?

Addressing this question served as a contextual background to the underlying policies in relation to this research. Highlighting the relevant policies gives the research a focal point and positions it within the wider policy framework.

Ghana’s deforestation rate has increased significantly so forest conservation is of great importance. How best to implement a forest management plan that can lead to sustainability is one of the most pressing issues faced by the Ghanaian government today.

The 1994 Forest and Wildlife policy was one of the first policies to encourage the participation of local farmers in the production and management of forest resources (Insaadoo *et al.* 2012). This shift in decentralisation was influenced by global changes (Derkyi 2012) and since then all policies relating to reforestation have focused on a collaboration approach. The Development Master Plan put forward in 1996 has a target of implementing plantations of 10,000 ha every year until 2020. This study would suggest that the scheme needs larger numbers to become involved in tree planting to reach such targets. In 2001 reforestation efforts were strengthened with the launch of the NFPDP, with on-farm tree planting as one of its main components. Focusing more on smallholder-based forest rehabilitation it has the combined goals of livelihood improvement, as tree-growers would meet their demand for timber, and of sustainable forest management, as planting on farm land would reduce the pressure on the reserve for timber and avoid further degradation by restoring tree cover (Blay *et al.* 2008). However, this study would suggest that tree planting has made little improvement on the lives of the tree-growers interviewed as it has involved an initial substantial financial outlay in respect of which the benefit will not be realised for many

years. Although there is small funding available and many farmers apply for it, very few actually receive it. Furthermore, the level of participation in tree planting within the villages suggests that it has only been sporadically applied which leads one to question whether NFPDP, and on-farm tree planting for that matter, can make any substantial improvement in reforestation.

This study proposes that in order to be effective, on-farm tree planting schemes must become gender-responsive. Gender equality is not only a matter of social justice but it has a great potential to enhance productivity by using both men and women's skills and talents and also to improve the decision-making process, leading to greater sustainability. This is well recognised worldwide. Ghana has a duty to formulate gender-aware policies arising from its signatory obligations created by international conventions. It is the responsibility of the government to implement gender-responsive policies in forestry institutions, however, the results from this study question their success, as both women from FC interviewed stated that there are still fewer women working in forestry compared to men and they themselves had experienced male biases in the work place. Furthermore, although the new Forest and Wildlife policy (2012) will be the first to consider mainstreaming gender within forestry it doesn't mention how it is planned to achieve this, which leads one to question its ability to achieve a gender-responsive forest management.

8.1.2 What gender differences can be observed regarding participation in decision-making, implementation and benefit sharing in on-farm tree planting schemes?

Differences between men and women's participation in on-farm tree planting can be observed in terms of their respective shares in decision-making, implementation and benefit sharing arrangements.

Even though this research investigated differences between men and women on an individual level, it is the household unit which controls the production, investment and decision-making in relation to the land owned by its members. In families where there is a male head he is the person who has the strongest power position and, therefore, exercises the greatest decision-making power in determining the initial decisions concerning on-farm tree planting. This research found that when women were participating, their husbands were also participating, and the husbands made the initial decisions to implement tree planting into their farming systems.

In many instances, where women participate in tree planting they have a greater involvement in the household decision-making process concerning farming. However, in still over half of the male headed households he, alone, will make all the decisions concerning tree planting. Women's operational decision-making within the villages is incredibly weak as they have little input

in decision-making within the public domain. This weakness comes from their lack of attendance at the tree growers' association (PADO) meetings which results in them losing out on external support. This failure to involve women seriously affects the scheme's ability to address household needs because it fails to utilise women's knowledge and, therefore, reduces the efficiency of the tree planting programmes (Agarwal 2001).

Although there are fewer women participating in tree planting and there is a greater proportion of women with smaller plots their ability to implement tree planting within their farming system is not restricted. Farmers with smaller plots are planting trees within their whole farming systems, while the majority of farmers with larger plots are only devoting a small section of that land to tree planting (see Chapter 6). The women tree-growers show great ability in tree planting however their participation in the administration relating to tree planting is low due to their lack of attendance at PADO meetings which means that women then have less opportunity for acquiring new knowledge and there is a lack of extension services for women.

Tree planting has the potential to lead to three types of benefits: material, social and personal. Many of the farmers, both male and female, stated that tree planting brings them little benefit. One of the main reasons was that their trees hadn't matured yet and their only short-term benefit was firewood. Financial instability and a lack of profits from tree planting discourages non-tree growers from planting trees and, at the same time, discourages both male and female tree growers from planting more trees and looking after their current trees. This absence of short-term benefits draws attention to a need to improve the financial circumstances of farmers involved in tree planting. Insaiddoo *et al.* (in press) suggest the provision of carbon payments, which could provide support in the short term. It was also noted that while tree growers lacked social and personal benefits from tree planting women's personal benefits were weaker due to a lack of attendance at PADO meetings. Men's greater involvement in the association meant that they had a stronger political power than the women and that their opinions were heard as a group.

8.1.3 What governance factors (in terms of tenure security, benefit arrangements and external and financial support) explain gender differences in on-farm tree planting?

A further investigation of governance issues in tenure security, benefit-sharing arrangements and external support is necessary in order to provide an understanding of the governance factors which cause a difference in levels of participation between men and women.

Tenure security was not an issue amongst farmers as they owned land that was inherited, which gave them long lasting private rights. However, land size was seen to be a determining factor

affecting investment. A number of studies suggest that a small farm size is likely to have a negative effect on a farmer's ability to plant trees. This holds true in a comparison between participants and non-participants. It was found that a greater proportion of male and female participants owned larger plots compared to non-participants. However, the opposite effect was discernible between participants. A greater proportion of both male and female tree-growers with smaller plots were planting trees alongside crops on all their land, while tree growers with larger plots were only using a small section of their land to plant trees. This low investment by farmers with larger plots could be related to higher levels of tenure insecurity.

Farmers are facing many challenges in the governance arrangements affecting on-farm tree planting.

1. The current benefit arrangement in the division of profits accumulating from naturally generated timber has a negative effect on farmers participating in on-farm tree planting. Due to the current benefit sharing arrangements in Ghana very little is left for the farmers on whose land the natural trees are growing. Greater recognition needs to be given to the management efforts of farmers of the natural regenerated trees.

2. Despite being entitled to full revenue from their planted trees farmers still have to ask FSD for permission to harvest and transport their timber. The farmers interviewed have become concerned about their rights over their planted trees which has led them not to contact the FSD. Instead, the illegal practice of chainsaw logging takes place and, in this way, farmers gain some income from the natural trees and circumvent the need to apply for permits, in contrast to the requirements placed on Timber Utilisation Contract holders. However, these chainsaw logging operators are untrained and renowned for wasteful practices and environmental damage to tree growers land (Grisley 1998).

3. It was found that farmers were being charged for FSD support which further discouraged farmers from contacting them. This charging is a violation of the 1994 Forest and Wildlife policy and associated legislation (Katako 2005: 24). It was found that the farmers were fully aware that they are entitled to free technical advice.

4. Farmers are facing great financial challenges because they are finding it extremely difficult to obtain credit as the banks will often not support them due to their lack of prospects and the long investment period involved in tree planting. Furthermore, there are difficulties associated with obtaining grants from the Forest Plantation Development Fund. This general lack of credit has the effect of limiting farmers' ability to invest in tree planting.

5. The FSD also has an obligation to provide extension services for farmers but it is greatly gender biased, which is a result of women not attending the tree growers association PADO through which

the farmers are contacted by the FSD and other supporting agencies. Also, there is a failure on the part of the FSD to increase the awareness of women in tree planting, which comes from a gender order within society.

8.1.4 How can gender differences in participation in on-farm tree planting be explained in terms of gender order?

This research showed that on-farm tree planting is dominated by a masculine gender order that favours male tree-growers over female. This stems from a gender hierarchy that follows a traditional acceptance of gender roles which stress masculine dominance in the society and also within the family. Although the villages follow a matrilineal inheritance system it is the male head who administers lineage property and he determines whether women inherit land and the size of plot they will inherit (Vercrujse 1988 in Lastarria-Cornhiel 1997:1323). Due to the customary laws over planted trees a farmer will only invest in tree planting if they have secure land rights. It was found in this study that land security was not a determining factor in tree planting as everyone interviewed had inherited land and some women had larger plots than some men. In general, however, women had inherited smaller plots of land compared to men which suggests there is a gender order affecting the inheritance system.

The organisational culture of the villages reflects the traditional views of the gender relations between men and women. They determine the roles that women and men have in the family and the community. As the husbands are in a higher power position they have greater influence over decisions. Inevitably it is the men who make the initial decisions to plant trees on both their lands and the land belonging to their wives. Therefore, women's entry into tree planting and their ability to efficiently invest in their land is determined by their husbands. Women's entry into tree planting is also affected by the customary laws in relation to marriage; a wife has an obligation to assist her husband on his land (Meinzen-Dick *et al.* 1997). This affects the amount of labour and time women can spend developing their own farms. Despite this obligation results showed that women's investment on smaller plots was not restricted.

Men and women perform multiple roles in society. The nature of the productive tasks carried out by men enables them to engage in other activities whereas the reproductive work carried out by women is more continuous and, therefore, as there is an on-going demand on their time this restricts their ability to participate in activities such as productive work. While men were more involved in the productive activities women were still providing substantial help. The various tasks involved in growing trees were not rigidly defined and many activities were carried out jointly.

It was this joint effort in generating both cash and non-cash income which gave households a greater ability to plant trees.

Personal endowments also affect the participation rate of men and women in tree planting. Marital status has the greatest effect on tree planting as women's participation is determined by their husband's participation. Men's ability to plant trees is also determined by their marital status, in that if they receive help from their wives in cash and non-cash income generating activities they have fewer responsibilities and thus can concentrate more on activities related to tree growing.

8.1.5 The implications of the research findings for on-farm tree planting schemes

From the results of this study one must critically reflect on the question whether tree planting is a feasible option for farmers' altogether and whether it should be promoted as a livelihood option for smaller holders considering that tree planting has brought little benefit to the tree-growers considered within this study. Over 60% of tree-growers interviewed stated that tree planting has brought them no benefits and the only benefits that do derive from tree planting are firewood and environmental benefits while only 2 farmers interviewed have received economic benefits resulting from harvesting. The tree-growers are aware that tree planting is a long term project because of the long gestation period involved. There is a lack of immediate income and insecurity about future income because of the risks involved such as fire or timber theft. Furthermore, after the canopy closes the land they have dedicated to tree planting is not available for anything else so, they cannot use the land for more immediate benefits, such as crops. This is worrying as over 50% of tree growers are using all their land to plant trees (figure 6.3) and the majority of these are tree growers with plots less than 24 acres.

This absence of short-term benefits draws attention to the pressing need to improve the financial circumstances of farmers involved in tree planting. Tree-growers have had to finance their tree planting projects from their own financial resources. They are finding it extremely difficult to obtain credit as often the banks and there are also difficulties associated with obtaining grants from the Forest Plantation Development Fund – only one has received it once. The question must be asked why so few receive this grant when so many apply and whether it is due to a lack of funding or proper administration? The funding needs to become more easily and frequently available in order to support the livelihoods of the tree-growers, especially those with smaller plots. Insaidoo *et al.* (in press) have given focus to considering the provision of carbon payments which could provide support in the short term. Projects like REDD+ need to be quickly implemented in order to provide more support for tree-growers

The current benefits sharing arrangement concerning naturally generated timber means that no profits are given to the farmers on whose land the trees are growing. This lack of recognition for the management efforts of the farmers has a negative effect on farmers participating in on-farm tree planting and results in the farmers refusing to contact FSD. Farmers need to be considered more fairly in the benefit sharing arrangement. Furthermore, the long drawn out process of applying for the permits to harvest planted trees has resulted in farmers choosing to opt for the illegal practices of chainsaw logging which results in wasteful practices, environmental damage and poorer prices for timber. It was also found that farmers were being charged for FSD support which further discouraged farmers from contacting them. FSD needs to visit the farmers more regularly, free of charge, in order for trust and closer cooperation to develop. FSD needs to take into consideration the harvesting deadlines and be more efficient in supplying harvesting permits and in helping farmers obtain better prices for their timber.

This study further showed that extension services were gender biased with much larger involvement of men than women. FSD needs to be aware that there is a masculine gender order within society which may explain why women are not attending the tree growers association PADO, through which the farmers are contacted by the FSD and other supporting agencies. Despite women's lack of attendance in PADO female tree-growers are devoting a large area of, if not all their land, to tree planting. These women need to be given greater support through the provision of more training opportunities and schemes which are aimed at targeting female tree-growers.

8.2 Theoretical reflection

Having provided a summary of the main research findings in relation to each research question it is now appropriate to discuss the relevance of the chosen theoretical concepts (presented in chapter 2). During the research process having a theoretical framework proved to be a very valuable asset, as it was extremely useful in refining the research questions and giving insight into the topics that needed to be researched.

8.4.1 Giving a focus to gender in environmental governance

The introduction of on-farm tree planting within the Ghanaian policy arena relates to a shift from government to governance which came with the engagement of local farmers in the utilisation and management of forest resources. This study focuses on farmers' adoption of on-farm tree planting in Ghana's NFPDP reforestation programme. It is believed that environmental policies in Ghana have had little impact because they are only sporadically applied (Wiggins et al. 2004:1939). The present scale of deforestation in Ghana will only be overcome if large numbers of individuals become involved in reforestation (Lamb *et al.* 2005: 1630). The low number of farmers involved in

tree planting in the Offinso FD and the villages leads one to question the present ability of the NFPDP to implement successful on-farm tree planting schemes and to encourage farmer involvement in environmental governance.

A number of authors (Appiah 2001, Zhang and Aboagye-Owiredu 2007) have investigated the determining governance factors that either encourage or discourage farmers to plant trees which include, land and tree tenure, benefit sharing arrangements and external support, but they failed to pay attention to gender differences. This study, therefore, investigated these determining governance factors which have been known to affect farmers' involvement in on-farm tree planting but with a focus on gender. Investigating how these factors affect the participation of men and women in on-farm tree planting can provide an understanding of how they relate to and use tree resources. This can lead to the scheme's objectives being developed in a way that is more compatible with the economic needs of men and women.

It is clear that farmers must have strong ownership rights in order to invest in on-farm tree planting. This is due to the customary laws over planted tree ownership and the future economic gain from tree planting that landowners will receive when the trees are eventually harvested. However, all respondents had strong land ownership rights through inheritance, including women, which suggests that the gender bias in tree planting is not caused by insecure land rights for women.

Participants with smaller plots were more likely to dedicate more land for tree planting, compared to farmers with larger plots, and a large proportion of those were women. This could be because farmers need to dedicate a large portion of their land in order to guarantee any benefits in the future or simply because larger plots are just more difficult to manage if they don't have the economic means to invest into tree planting. All of the participants interviewed faced great financial difficulty. This was because it is extremely difficult to obtain credit and there are difficulties in obtaining grants from the Forest Plantation Development Fund.

Furthermore, the current benefit arrangements relating to naturally generated trees, the bureaucratic procedure relating to harvesting permits and the lack of recognition of farmers' efforts in environmental management over trees has lead tree-growers to become concerned about their rights over their planted trees which has lead them to avoid contact with the FSD and to opt instead for chainsaw logging practices. This neither results in good environmental practice nor does it encourage farmers to become involved in tree planting because of the damage caused to their land which limits the successfulness of the scheme.

At the present time tree planting is not a feasible livelihood option for farmers due to land scarcity associated with the lack of land to grow crops, the lack of an immediate income from the trees and the lack of support from the government. If NFPDP is going to continue promoting tree planting as a livelihood option then farmers, and particularly women farmers, will need to be given greater recognition for their efforts in tree planting together with more financial support. This need is particularly great among those farmers who have dedicated all their land to tree planting as they have few alternatives for economic income because their land cannot be used for anything else. Closer cooperation between FSD and tree growers is also required in order to provide support for management, harvesting and prices and to enable tree-planting to be environmentally efficient.

8.2.2 Linking gender participation to gender order.

Women's participation in tree planting is very much determined by the cultural arrangement of the gender power relations within society which has created a situation in which men dominate tree planting. The initial decision for a woman to begin tree planting is made by her husband and it would be unlikely that a woman would participate of her own accord without the support from her husband. This results from women having an obligation to seek the permission of their husbands concerning household income. Furthermore, women are constrained in seeking loans or financial support for tree planting. It is the joint efforts of a husband and wife to generate both cash and non-cash income which leads to the added activity of tree planting. Therefore, men would find it difficult to participate in tree planting without the support of their wives.

At community level it is the husband who represents the family in a public domain so he is the one who attends the PADO meetings. This is unsatisfactory as tree planting has thus become dominated by men to the detriment of women who are generally excluded from decision making and whose interests are not given sufficient consideration.

Despite these difficulties female tree-growers' resource contribution is still high as a large majority of women are dedicating most of their land to tree planting. This would also just that their financial contribution to tree planting is also high. This highlights a greater need to recognise women's efforts in tree planting.

Female tree-growers resource contribution signifies that land security is not an issue for them but they need more support as tree-growers. More financial support should be given to female tree-growers to support their livelihoods because of their lack of an immediate income from tree planting and the lack of space for crop growing because so much of their land is taken up with

trees. Providing greater support for women will make sure that the scheme is more representative of their voices and needs and will make the scheme more efficient for women.

8.3 Suggestions for further research

This study identified gender-based barriers to on-farm tree planting by investigating gender differences in participation in decision-making, implementation, benefits, tenure security and external support. However, knowledge gaps still exist. This study is just one case study with a small sample size. Additional research is required to map gender differences in on-farm tree planting (or farm forestry as it is also referred to in the literature), not only in Ghana but in other countries, in order to provide a more in-depth sampling and investigation. This study identified the barriers which exist in on-farm tree planting. There needs to be further study aimed at investigating ways of implementing a more gender-aware on-farm tree planting scheme which could then lead to incentives being developed which would encourage more female farmers to participate. Further research could also be conducted in order to assess the effectiveness of on-farm tree planting in relation to women's empowerment. To this end a further study could be conducted which would investigate how participation is affected in different categories of men and women, for example, female-headed households and women in male-headed households, and in relation to younger and older women and men. This further study could also identify differences in men and women's access to markets for plantation products and timber prices. The current study showed that many participating farmers are currently facing great financial challenges in tree planting so a further study is needed to investigate ways in which farmers could be supported financially, either by means of carbon payment, i.e. the REDD+ schemes, or by ways in which the Plantation Development fund could become more supportive of farmers or by ways in which the FC could help farmers market their timber more effectively.

8.4 Recommendations for policymakers

Ghana has shown increasing awareness of gender issues in the past two decades. As a signatory to many international conventions (see Section 4.2) it has the obligation to pay special attention to gender issues. In order for tree management to become more sustainable, both men and women must be encouraged to adopt an active role within the process. In this respect a number of recommendations can be made. At the outset it should be understood that tree planting is not just a man's business, as women have available land and this study has shown that they are perfectly able to participate in tree planting.

When providing services, FC officers should ensure that greater numbers of women are targeted, that extension activities address different interest groups (differences between men and

women are not always clear cut) and these services are provided free of charge and also at times which would also be convenient for women. They should also develop women-only groups and hold separate meetings for men and women as this would enable women's voices be heard.

Better access for women will greatly improve the benefits they derive from the scheme as this study showed few benefits were realised and land dedicated for tree planting would eventually become unavailable for other economic purposes such as crops which have more instant benefits. There is a need for more economic support for farmers while their trees are still growing e.g. REDD+ system for carbon payments and also funding should be more readily available when applying for grants from the Forest Plantation Development Fund. Government and NGOs should focus on helping both men and women to link up with financial institutions which would enable farmers to get cheaper finance. They should also focus on creating a more equitable benefit arrangement which would enable farmers to obtain better prices for their timber. There should be a greater level of communication between the FC and NGOs so that they can develop plans together and thereby create more beneficial programmes for tree growers.

8.5 By way of conclusion

It is often difficult to change the unequal resource distribution between men and women as the latter frequently lack the opportunity to express their thoughts and opinions about their increasing workload or lack of resources. It has been argued by Peet and Hartwick (2009) that this has resulted in the majority of women having less access to human and political capital like education, health, and legal rights, which, in this context, is reflected in women's lack of attendance at PADO meetings. Shortcomings like this globally have led to the concept of 'feminisation of poverty' (Chant 2007:78). As Sweetman (2011:1) stated, "Global statistics continue to show that women are disproportionately poorer than men". Also Oxfam's 'Policy on Gender Equality' (2003) 'reasserts that:

"Women often have less access to resources than men, less legal recognition and protection, less access to public knowledge and less representation in decision-making power both within and outside the home" (Ruxton 2004: 3).

A sustainable development strategy therefore, is vital, not only for the benefit rural Ghanaian women, who are among the poorest of the population, but would also to improve forest conservation. However, in order for such a strategy to be developed successfully a greater number of women need to be included in the decision-making process in on-farm tree planting.

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Appendices

Appendix 1 Interview guide

Tropenbos International Ghana and University of Amsterdam.

Gender-based barriers to off-reserve tree planting in Offinso Forest District (interview questions).

Participation questions:

1. Are there any gender differences with regards to participation in tree-planting and tree-growers associations?
2. In your opinion what factors determine gender differences in participation within tree planting schemes?
3. Are there differences between men and women when it comes to their active role in tree planting?

Benefits and challenges:

4. In your opinion, what would you consider to be the main benefits for farmers who plant trees?
5. What would you consider to be the key challenges, for men and for women, to ensure effective management of tree planting in off-reserve? Do you think women face any limitations to engaging in tree-planting on off reserve land?
6. Do you think that there are adequate facilities that are moving towards the encouragement of tree growing for men and women and how are these facilities being funded? How are the farmer expected to fund the tree planting?
7. After interviewing a number of farmers (men and women) one of the main challenges they stated is that tree-planting hasn't brought them any benefits, that they have had to finance planting and growing by their own means (no loans) and it has cost them more than they receive, what is being done to protect tree-growers livelihoods?

(having asked a number of farmers how they have learnt certain tree planting techniques, a large majority stated that they have not learnt tree harvesting or marketing how should these be encouraged for future benefits?)

8. Many also expressed that they grow trees for the future of their children and they personally have not received any benefits. What are your hopes for tree growers in Ghana, in terms of their economic and social situation and do you think that their current situation will improve?
9. It seems that tree planting on farm land is popular, has there been a noticeable reduction of deforestation in forest reserves?
10. What resource rights are attached to trees with regards to storing and selling of carbon (carbon market) and how are these rights protected? (p14, which path for REDD.

Policies and Implementation:

11. How is gender considered in policies regarding Ghana's reforestation schemes in general and in on-farm tree planting schemes in particular?
12. Do you consider that the current policies in Ghana are successful in addressing gender differences in tree growing and how are they working in practice? Are the initiatives working? What isn't working about them?
13. What do you think should be done by government to ensure that men and women are actively (equity) involved in tree-planting? With appropriate access to information?
14. What should local leaders (chiefs, assembly-people) do to ensure that men and women are actively involved in tree planting?
15. Are men and women's level of authority different within decision making with regard to tree planting? Are the specialisation jobs (forest business, chief executive officers, presidential positions in tree-growers committees and government positions) equality distributed between men and women? And is there enough room for both men and women to express their opinions?

Institution questions:

16. What are the main needs of your institution and how is it funded?
17. How are the opinions and needs of both male and female farmers addressed within your institution?
18. Does your organisation promote gender equality in tree planting in off-reserve and if so in what way?

Appendix 2 Interview table

Interview	Position	Sex	Date of interview	Place of Interview
1	FC	Female	2 nd April 2012	Kumasi
2	FORIG	Female	4 th April 2012	Kumasi
3	FSD	Male	12 th April 2012	Offinso
4	Tropenbos	Male	16 st April 2012	Kumasi
5	FSD	Male	22 nd April 2012	Offinso
6	FC	Female	23 rd April 2012	Accra
7	FC	Female	23 rd April 2012	Accra
8	FC	Male	24 th April 2012	Kumasi
9	Tropenbos	Male	2 nd May 2012	Kumasi

*Interviewees' name will not be given due to privacy.

Appendix 3 Questionnaire

Tropenbos International Ghana and University of Amsterdam.

Questionnaire for community members participating in on-farm tree planting

General information

Name of village:	Date of data collection:
1. Name of nearby forest reserve (s):	
2. Name of respondent:	3. Telephone:

I. Respondent's socio-economic characteristics (please tick what applies or fill in the space)

Interviewer explain to respondent: We first start with some general questions about you and your household:

1. Sex	A. Male []	B. Female []	2. Actual age:	
3. Origin	A. Migrant []	B. Indigene []	4. If migrant: name of region [E.g. Ashanti, Volta, Burkina Faso etc.]	
5. Education	A. Primary []	B. JHS []	C. Secondary (SHS) []	
	D. Technical []	E. Non-formal []	F. None []	
	F. Others (specify)			
6. Marital status	A. Married []	B. Single []	C. Divorced []	C. Widowed []
7. Religion	A. Christian []	B. Islam []	C. Traditional []	D. Other [specify]
8. Family size (no.)	9. Main occupation (specify)			
10. Sources of household income (more answers possible:)	A. Food crops []	B. Cash crops []	C. Petty trading []	D. NTFP collection []
	E. Formal employment (specify) []	F. Reforestation (MTS, HIPC, tree planting off-reserve etc.) []	G. Remittances []	H. Others [] (specify)
11. Who contributes to household cash income? (tick what applies and specify %)	A. Male head of household [] _____%	B. Spouse [] _____%	C. Others (specify [] _____%	

12. Who contributes to household non-cash income (e.g. food, and other things you use at home) (tick what applies and specify %)	D. Male head of household [] _____%	E. Spouse [] _____%	F. Others (specify [] _____%)
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II. Farming land

Interviewer explain to respondent: We now have a few questions about your farming land

1. Do you have land in off-reserve area	A. Yes []	B. No [] → Part C
2. What is the size of the land? (specify measure)		
3. How did you acquire the land	A. Land purchased []	
	B. Land rented /leased []	
	C. Land pledged in exchange for a loan []	
	D. Share cropping []	
	a. abunu []	b. abusa []
	c. other []	
	E. Family land (inheritance) []	
	F. others [] (specify)	
4. Does land acquisition differ for men and women?	A. Yes [] → How?	B. No []
5. What is growing on your land? (tick the categories that apply and specify crops and tree species)	A. Food crops:	
	B. Permanent crops:	
	C. Timber trees (planted):	
	D. Timber trees (naturally growing/tended):	
	E. Other (specify):	

6. Why did you choose (not) to plant trees on your land?	
7. i How much of your land lies fallow?	(specify measure)
ii What products do you derive from your fallowland?	

III. Tree planting management in off-reserve area

Interviewer explain to respondent: The following questions are about tree planting

1. What is the size(s) of land under tree planting? _____ (specify measure)		2. Year you first went into tree plantation?		
		3. Reasons behind tree planting?		
4. (Tick what applies:) In terms of ownership, is the land where you planted trees...	A. Purchased/own land []		B. Family land []	C. Sharecropping []
	D. other (specify)			
5. (Tick what applies:) In terms of planting, what kind of plantation do you have?	A. Pure stand plantation mixed with food crops []	B. Trees mixed with permanent crops []	C. Boundary planting []	D. Others (specify)
6i. Does the law encourage you to plant trees?		A. [] Yes → 6ii How?		
		B. [] No		
7i Are you aware of the law that gives tree ownership to individuals who plant trees?		A. [] Yes → 7ii Please kindly explain what the law says		
		B. [] No		
8. Of the following activities, who within your household is doing....	A. Land preparation:	B. Seedlings production:	C. Pegging:	
	D. Planting:	E. Weeding:	F. Pruning:	
	G. Thinning:	H. Harvesting of trees:	I. Marketing of trees:	
	J. Other (specify)			

9i. Have you received any training in <i>(tick what applies and specify for each item that applies who provided the training)</i>	9ii. Who provided the training? A. Tree planting [] B. Seed identification [] C. Seedling production [] D. Land preparation [] E. Pegging [] F. Tree planting techniques [] G. How to combine tree planting with crops [] H. Pruning [] I. Thinning [] J. Tree harvesting [] K. Marketing of trees [] L. Nursery establishment [] M. Other (specify) N. None					
10. Please indicate on this scale, the accessibility of these training opportunities to you as a person:	Not accessible Easily accessible <div style="text-align: center;"> <u>1</u>-----<u>2</u>-----<u>3</u>-----<u>4</u>-----<u>5</u> </div>					
11i. Is training available to anyone who needs it?	A. Yes []	B. No []	11ii. Reason of choice:			
12i. How did you finance your tree planting? <i>(tick what applies and specify in the case of sources other than own means who provided it)</i>	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%; vertical-align: top;"> 12ii. Who provided? A. Own means [] B. Loan [] → C. Gift or subsidy [] D. Other (specify) </td> <td style="width: 33%; vertical-align: top;"> 12iii Can you indicate order of importance? [] [] [] [] [] [] [] [] [] </td> <td style="width: 33%; vertical-align: top;"> 12ii. Who provided? A. Bank [] B. Moneylender [] C. Relative [] D. Cooperative scheme [] E. Other (specify) A. Government [] B. Other (specify) </td> </tr> </table>			12ii. Who provided? A. Own means [] B. Loan [] → C. Gift or subsidy [] D. Other (specify)	12iii Can you indicate order of importance? [] [] [] [] [] [] [] [] []	12ii. Who provided? A. Bank [] B. Moneylender [] C. Relative [] D. Cooperative scheme [] E. Other (specify) A. Government [] B. Other (specify)
12ii. Who provided? A. Own means [] B. Loan [] → C. Gift or subsidy [] D. Other (specify)	12iii Can you indicate order of importance? [] [] [] [] [] [] [] [] []	12ii. Who provided? A. Bank [] B. Moneylender [] C. Relative [] D. Cooperative scheme [] E. Other (specify) A. Government [] B. Other (specify)				
13. If you had a loan, what is/was the rate of interest?	A. Bank: B. Moneylender: C. Relative: D. Cooperative scheme:: E. Other (specify):					
14. Please indicate on this scale your level of ability to	Difficult Easy					

problems? (specify who should do that)

IV. Participation in tree planting association

Interviewer explain to respondent: Now we have a few questions about your participation in the tree planting association.

1i. Are you involved in any tree planting associations or groups?	A. Yes → 1ii Which group?		B. No → 1iii Why not?
(question for members only) 2. What kind of member are you?	A. Ordinary member	B. Member of the executive group	C. Other (specify)
(question for members only) 3. Are you paid for being a member in the tree-grower association or do you pay a membership fee or is membership on a voluntary basis?	A. Is paid (specify amount)	B. Has to pay a fee (specify amount)	C. Voluntary
4. What is your level of interest/desire to participate in the tree grower association?	Not interested Strongly interested <u>1</u> ----- <u>2</u> ----- <u>3</u> ----- <u>4</u> ----- <u>5</u>		
5. Do you have much authority over decision making regarding tree-planting	A. Yes		B. No
	5ii. If yes, what authority		5iii. If no why
6. Do you feel that your opinions are well represented within the tree planting association?	A. Yes	B. No	Reasons for choice
7. Whose opinions are taken into account within the tree planters association? (indicate yes or no)	1. Larger scale plantation growers		Yes / No
	2. Landowners		Yes / No
	3. Tenants		Yes / No
	4. Executives		Yes / No
	5. Men		Yes / No
	6. Women		Yes / No
	7. Others		Yes / No
	8. All		Yes / No
8. Do you have time to participate in meetings?	A. Yes []	B. No []	Reasons for choice
9. Does being male or female affect your participation in	A. Yes []	B. No []	Reasons for choice

meetings?			
10. Do you feel that there are any other factors affecting your participation in meetings?	A. Yes []	B. No []	Reasons for choice

V. Household Division of Labour

Interviewer explain to respondent: The following questions are about how tasks are divided within your household

1i. Who is the household head?	1. Male []	2. Female []	1ii. Why?
2i. Do you feel that household tasks are equally shared within the household?	1. Equally shared []	2. Not equally shared []	
	2ii. Reasons for choice		
3i. Do you feel that farming tasks are equally shared within the household?	1. Equally shared []	2. Not equally shared []	
	3ii. Reasons for choice		
4i. Do you feel that social tasks (e.g. participation in village meetings, church, etc.) are equally shared within the household?	1. Equally shared []	2. Not equally shared []	
	4ii. Reasons for choice		
5. What are, in your opinion, typically female tasks and duties?			
6. What are, in your opinion, typically male tasks and duties?			
7. Within your household who makes the decisions concerning:	1. The family welfare [] Male [] Female 2. Crops to be planted [] Male [] Female 3. Tree planting establishment and management [] Male [] Female		

VI. Roles and responsibilities of men and women in timber tree planting in off-reserve areas

Interviewer explain to respondent: The final questions are about who plays what role in timber tree planting and management

1. What roles do men play in off-reserve tree planting and management?		
2. What roles do men play in off-reserve tree planting and management?		
3. What should be done to prevent wildfire and who do you think is responsible for that?	3i. What to be done?	3ii. Who is responsible?
4. What should be done to prevent timber theft and who do you think is responsible for that?	4i. What to be done?	4ii. Who is responsible?
5. What do you think the following stakeholders should do to promote timber tree planting as a means of livelihood?		
<ul style="list-style-type: none"> a. Government (FSD): b. MOFA: c. Timber contractors: d. Traditional leaders: e. Landowners: f. Tenant farmers: g. NGOs (specify): h. Others (specify): 		
Is there any question or final comment you would like to make that you think is relevant for this study?		

THANK YOU VERY MUCH FOR YOUR COOPERATION!

Appendix 4 Focus group guide

Tropenbos International Ghana and University of Amsterdam.

MSC Research: Assessment of **gender-based barriers to off-reserve tree planting in Offinso Forest District**

1. A) What roles should men and women play separately to promote tree planting in off-reserve for livelihood support?	1.Roles of men	2.Roles of women
	1 Male differences	2. Female differences
	1. B) Are there any gender differences with regards to participation in tree-planting and tree-growers associations?	
1. C) Are both women and men actively and equally involved in tree growers associations? If so, how? If not, why?		

2. A) What roles should both men and women play to ensure effective management of tree planting in off-reserves.	1.Roles for men	2.Roles for women
2. B) In your opinion what factors determine gender differences in participation within tree planting schemes?		
2. C) How do farmers fund their tree planting activities?		
2. D) Have you heard of any tree planting fund that farmers are entitled to?		
4.Please specify the roles and responsibilities of the following stakeholders to promote timber tree planting as means of livelihoods		
a.Govt.(FSD)		
b.MOFA		

Timber contractors		
Traditional leaders/ Landowners		
Tenant farmers		
NGOs (specify)		
Others (specify)		
5. Are there differences between men and women when it comes to their active role in tree planting?	1.Men	2.Women
7. Do men and women have the same level of support/room to voice opinions and to be listened to? Reason for either answer.	Yes.....	
	No.....	

