**Agroforestry Preferences, Identity, and Potential Collaboration
Among CAR Refugees and Host Community Cameroonians in Adamaoua, Cameroon**

Elizabeth Anderson Moore

Thesis submitted to the Faculty of the Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Master of Science
in
Forestry

John F. Munsell, Chair
A. L. Tom Hammett
Keith M. Moore

June 27, 2013
Blacksburg, VA

Keywords:
Agroforestry, refugees, Cameroon, community natural resource management, identity

Agroforestry Preferences, Identity, and Potential Collaboration
Among CAR Refugees and Host Community Cameroonians in Adamaoua, Cameroon

Elizabeth Anderson Moore

Abstract

For the past 10 years, thousands of refugees from Central African Republic (CAR) have crossed into Cameroon and settled in villages along the border. Refugee influxes can produce ecological and social challenges to host communities. While conflict is often a result, there is also an opportunity for collaboration and successful integration. Agroforestry, the intentional incorporation and management of trees in agricultural systems, provides a tool that can respond to both social and ecological challenges by providing conservation farming techniques and increasing diversified home production of many needed products. This research sought to understand the needs of community members for specific practices as well as preferences for social implementation of practices, using a frame of identity to help inform on integration and collaboration potential in agricultural projects.

The participatory research collected demographic data, employed a 20 point oral questionnaire, and utilized illustrated visual ranking and storytelling tools to gather information on 8 agroforestry practice and implementation preferences, identity, and social arrangement preferences among community members. Agroforestry practices were divided between product-oriented and service-oriented practices. We collected data from 122 individual interviews evenly divided between men and women, and CAR refugees and host community Cameroonians.

Results show that there are significant differences in agroforestry practice and implementation preferences across the sample, and between refugees and Cameroonians. Most people felt that refugees and Cameroonians had similar traditions and needs, and that most areas of life should be integrated, however agriculture was an area that the people were more hesitant about mixing, demonstrating that arrangements and implementation of agricultural projects should be carefully designed and executed. Those who preferred mixing of refugees and Cameroonians in fieldwork included members of all demographic groups, signifying the potential for integrated collaboration on community agricultural projects. Results demonstrate that agroforestry projects have the potential to provide important valued resources to communities, create an opportunity for knowledge transfer and improved agricultural systems, and be the scene for positive contact between refugees and Cameroonians, leading to successful integration.

Acknowledgements

Table of Contents

List of Tables

List of Figures

CHAPTER 1. INTRODUCTION

Agriculture in sub-Saharan Africa faces many ecological challenges including soil degradation, desertification, and deforestation (National Research Council Advisory Committee on the Sahel 1983; Leaky 2012). Additionally, many African countries experience conflict, which affects both natural resources and social relations. When refugees move to new locations, the environment is impacted due to additional population pressure (Ghimire 1994; Black and Sessay 1997; Kibreab 1997; Black 1998). Refugees must learn new skills and adjust into life in their new location, often finding a new livelihood (Adjaloo et al. 2008) while local communities must navigate the merging of cultures and the incorporation of more people into their systems of natural resource and agricultural management (Unruh, 1993). Conflict between refugees and local communities members can arise as a result of a sense of competition, loss of natural resources, feelings of discrimination or threat (Agblorti, 2011).

Agroforestry, the intentional incorporation and management of trees in agricultural systems, is one tool which offers specific services appropriate for and relevant to the environmental and social challenges in refugee contexts (Nair 1993; Swaminathan 2012). The conservation benefits provided by agroforestry are vital for communities facing increased population pressure. For people who have lost their livelihoods and possessions, agricultural systems that increase the production of food, fuel, and building materials are a bridge to self-sufficiency. Recent research has also shown that agroforestry systems may contribute to conflict management through increasing agricultural productivity, delineating field boundaries and reducing grazing pressure on fields (Namaalwa et al. 2011).

Participatory methods allow community members to play an active role in selecting agroforestry techniques that they would be most interested in implementing (Roothaert and Franzel 2001; Kuntashula and Mafongoya 2005). While it is not only helpful but imperative to understand

the needs and desires of community members in selection of specific agroforestry practices, it is also important to understand how community members would want to carry out such techniques in particular social arrangements. The former question is frequently asked in the context of agroforestry adoption; the latter question is rarely explored. While many things affect social arrangements in village life, identity and perceptions of similarity and difference strongly influence group relations and cooperation (Gaertner et al. 1993; Hornsey and Hogg, 2000a). This is especially true in the context of villages with newly settled refugees. Understanding group relations is integral to understanding how community members would want to carry out agroforestry techniques, manage agricultural and natural resources, and more broadly, collaborate in village life.

1.1 Background

From 1998, 100,000 refugees from Central African Republic have crossed into Cameroon, seeking refuge from violence (UNHCR 2011). The majority of the refugees are Foulbé, traditionally semi-nomadic pastoralists with little agricultural background. Other lesser represented groups include Gbaya, Pana, and Karé, who are traditionally farmers. Refugees described two types of threats that created the refugee flow. The first were "bandits" who targeted Foulbé because they owned cows; they stole livestock or kidnapped family members for ransom. Some felt that the bandits were sometimes members of their villages or neighboring villages. Later, militia and rebel groups based in the area attacked communities. They targeted everyone indiscriminately, stealing and killing. In the Adamaoua region of Cameroon, refugees settled in over 300 villages ranging over 50,000 square kilometers (UNHCR 2011).

United Nations High Commissioner for Refugees' (UNHCR) long-term strategy is to gain naturalization or residence permits for the refugees to allow them permanent life in Cameroon. Because of their uprooted lives, loss of livestock and homes, and lack of agricultural experience, malnutrition has been a major concern and some aid efforts have been focused on teaching agricultural skills. The NGO International Medical Corps (IMC) has been working in the area of Meiganga and Djohong, along the

border of CAR, implementing health programs for the populations. Part of their program to combat malnutrition is the creation of community gardens and fields for villages. Respondents in the community gardens learn agricultural skills, have access to farming tools, and farm their own plots. Originally formed with refugees groups only, IMC now create farming groups including both refugees and Cameroonians.

1.2 Objectives

This research focused on answering two primary questions: 1a) In villages of host community members and resettled refugees what type of agroforestry practices would community members would be interested in carrying out? and 1b) How would want they to implement them? and 2a) What social arrangements people prefer to work in on agricultural projects? and 2b) What might affect those preferences? One hundred and twenty-two individuals were interviewed in the Adamaoua Region of the Republic of Cameroon, during two months in 2013. Respondents ranked illustrations of 8 agroforestry techniques, explaining why they chose each one and how they would prefer to implement them (after Pisanelli et al. 2008; Kelso and Jacobson 2011). A 20 question oral survey was administered covering themes of identity and community integration. Finally a visual storytelling activity was used to record their preferred social arrangements between refuges and Cameroonians in fieldwork settings. In order to fully explore these questions, results were analyzed across the total sample, and then divided into three main sets of variables: 1) *status* as Cameroonian or as refugee, 2) *gender*, and 3) *ethnicity*, to gauge differences between groups and to understand the profiles of individuals who would be interested in working on certain types of projects in certain social arrangements. Identity scores and results from the visual storytelling activity were also analyzed to explore potential relationships between them.

1.3 Organization

The thesis is organized into five main components: 1) Introduction; 2) Literature Review; 3) A chapter discussing agroforestry technique preferences; 4) A chapter exploring ideas of identity and group relations as relating to village life and fieldwork arrangements; and 5) Conclusions. Chapter 2, the literature review, covers research on agroforestry techniques, extension, adoption and implementation in land management; research on refugee impact on natural resources, refugee livelihoods, and refugee-host relations; group identity and intergroup relations; participatory and art-influenced methods; and methodology and ethics in refugee studies, in order to provide a basis for the research that I carried out. Chapter 3, which discusses agroforestry preferences among Central African Republic (CAR) refugees and Cameroonians, uses results from descriptive statistics, nonparametric tests, and qualitative data to explore the ranking and implementation preferences of 8 agroforestry techniques among men and women, refugees and Cameroonians, and members of two major ethnic groups. Chapter 3 looks at the relationship of group identity variables and preferences for social arrangements in fieldwork. It uses nonparametric tests to understand relationships between identity and social field arrangements. Chapter 5 concludes the thesis, describing key findings and relevance to work in this field.

CHAPTER 2. LITERATURE REVIEW

2.1 Agroforestry and Africa

Agroforestry is the intentional integration of trees into farming landscapes. It can provide conservation, economic, and social benefits, and has a long history of use in tropical areas, especially Sub-Saharan Africa (National Resource Council Advisory Committee on the Sahel 1983; Nair 1993). In this region agroforestry techniques are often used to deal with environmental challenges, including desertification, deforestation, soil degradation, water quality and quantity, and drought and flooding (Nair 1989). Ogunlana (2004) argues that because agroforestry mimics natural systems and traditional farming systems that have been used for centuries, it is a relevant and effective tool for combating problems and creating positive change in farming and environmental systems.

There are many agroforestry techniques and arrangements practiced in Sub-Saharan Africa (Rocheleau et al. 1988; Kerkhof et al. 1990). Alley cropping, contour farming, and improved fallow techniques are used to improve soil fertility in farming fields. Trees planted along field boundaries provide social and conservation services as boundary markers, live fences and windbreaks. Cut-and-carry fodder systems and woodlots furnish fuel wood, construction material, and animal feed. Forest gardens, orchards, and home tree vegetable gardens provide food products.

Understanding farmer preferences for specific agroforestry practices is important for developing extension programs and aid (e.g., Kuntashula and Mafongoya 2003; Mekoya et al. 2008; Kelso and Jacobson 2011). Agroforestry technique preference studies often implement participatory methods to understand audience needs. Results from these studies can be used to inform organizations working to promote agroforestry in specific communities. Kelso and Jacobsen's (2011) study of agroforestry techniques worked with farmer groups in a South African community to prioritize which techniques each group would be most interested in employing and explore reasons why. As part of their participatory method, initial steps were taken to implement preferred practices.

Studies use a variety of ranking methods to record farmer preferences for techniques or species. Some studies use ranking scale systems in which each item is ranked on a given scale and scores are

compared across items. Kuntashula and Mafongoya (2003) surveyed farmer preference for leguminous trees by using a traditional game (bao) to rate 11 tree species. The bao game served as a way to rank each tree 1-3 in terms of various characteristics. Species scores were compared across groups. Mekoya et al. (2008) looked at individual farmer ranking of multipurpose fodder trees in Ethiopia by independent scoring from 1-4 for each species across many characteristics. Lists of the trees to be ranked were generated by farmers in focus groups and trees varied by region.

Other studies use rank ordering systems whereby each item is ordered according to preference in relation to other items. Agea et al. (2007) studied farmer preferences for indigenous tree species and used a farmer generated ranking system. Individual farmers independently listed 15 of their preferred species in rank order and each species was given a score. Scores among all participants were added together to create a prioritization of all tree species among the sample. Kelso and Jacobson's (2011) study in South Africa used a pairwise ranking system for 16 agroforestry techniques. Three farmer groups participated in the ranking exercise, providing 3 ranked lists of the 16 techniques. Order ranking methods allow for each item to have a unique order, forcing items into different levels of importance, and increasing variation, whereas ranking on scales of 1-3 mean that items may all receive similar rankings to each other. Pairwise ranking is the most rigorous of all ranking methods in making a comparison between each item. However, this technique is very time consuming and often not the best option for large numbers of individual surveys.

Farmers are often most interested in agroforestry practices that directly meet field or household needs or provide solutions to particular farming issues (Kelso and Jacobson 2011). Several studies demonstrate preference for fruit, fuelwood, construction/timber wood, and conservation benefits such as soil conservation (e.g. Fischer and Vasseur 2002; Johnson and Delgado 2003; Alam et al. 2010).

It is also important to understand how farmers would like to implement agroforestry projects, and this is an area rarely explored in research. Working in farmer collectives is a frequent practice in many villages. Farmer groups offer benefits of work support, pooling of resources, and division of labor. Many aid agencies follow this model when working in agricultural development projects, encouraging

villagers to form groups or collectives with which they will work, distributing materials, land, and/or training (Davis et al. 2004). While some farmers may prefer to work individually or in a group based on personal and household attributes, such choices may also reflect on perceptions of agroforestry techniques themselves. One may choose to work through the medium of a group for a project that they do know have the knowledge for or that they are less interested in, whereas they may prefer to work as a family on a project they feel competent enough for, or which they are more interested in. Group or family implementation preferences shed light both on farmer characteristics as well as perceived characteristics of agroforestry practices.

2.2 Refugees in Africa

Social challenges compound ecological challenges to agriculture and are a major factor in the potential for agroforestry. Conflict is a frequent occurrence, in the form of war, social unrest, and governmental instability and refugee flows are often a result, both within and across national borders. UNHCR defines a refugee as one who "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality, and is unable to, or owing to such fear, is unwilling to avail himself of the protection of that country" (UNHCR 1992). UNHCR is tasked with the protection and aid of all refugees worldwide and is supported by the International Committee of the Red Cross (ICRC), which provides health and medical services, the World Food Program (WFP), which provides food rations, and other aid organizations.

Refugee influxes impact the natural resources of the areas they settle into, whether permanently or temporarily. Added population puts pressure onto the land, vegetation, wildlife and water resources (Lassailley-Jacob 1993; Ghimire 1994; Jacobsen 1997). Ghimire (1994) divides refugee removal of vegetation into two categories. One is the individual removal of trees for firewood, construction wood, medicine, or fodder for animals. The other is clear-cutting forests which might be the result of clearing land for farming, or for the establishment of infrastructure of a refugee camp, building houses and schools

and markets (Ghimire 1994; Jacobsen 1997). If refugees bring livestock with them, the additional number of animals increases the impact on area vegetation (Unruh 1993). Added population pressure and lack of sufficient land may mean that farmers are no longer able to let land lay fallow. Erosion and decreasing soil fertility can result and land scarcity can become a source of conflict (Namaalwa et al. 2011).

Kibreab (1997) critiques the emphasis in literature on the environmental impact of refugees. He claims that refugees should not be considered "exceptional resource degraders" and protests that this theme is too often repeated without sufficient empirical evidence to back it up. He refutes the claim that refugees are more careless with natural resources because they are residing in a place temporarily or because they have lost everything, claiming that refugees living in precarious positions are more likely to live frugally in respect to natural resource use. He also suggests that refugees will live as if they are staying permanently in a region unless they know otherwise. He points out that most major refugee movements include aid agencies supplying alternative fuel sources. Black and Sessay (1997) found that refugee use of fuel wood did not greatly differ from host community members in their study of fuel wood use in the Senegal Valley. Kibreab (1997) also argues that refugees may come from areas with better conservation farming methods and could bring these traditions to their host region. This reticence to accept the idea of refugees as degraders of the environment may be based out of a fear of the repercussions of such understandings; that is, would-be host country governments may close the doors to hosting refugees within their border if they fear potential environmental damage. The government of Sudan has asked for monetary compensation to host refugees due to claims of refugees damaging Sudan's natural resources (Kibreab 1996). It is true that refugee use of natural resources may not be more destructive than local populations', however a sudden increase of population will put pressure on natural resources. Jacobsen (1997) notes that refugee associated environmental degradation is not inevitable and can depend on multiple factors such as length of time refugees are displaced in an area, size of the population, and relationship between refugees and host communities.

There are multiple strategies in managing refugee populations. Historically there have been three common refugee settlement patterns. Most frequently employed are bringing refugees into a camp setting or encouraging local integration. In some regions UNHCR and local governments have experimented with agricultural settlements, in which refugees are given land and encouraged to settle permanently, but separate from local communities. Often, due to media coverage, refugee camps are the most visible on a worldwide scale but a minority of refugees end up in organized refugee settlements; the majority of refugees entering a country become self-settled (Jacobsen 1997; Horst 2006).

The choice of type of settlement is dependent on the number of refugees, the ability of the local ecology and economy to support them, host country requirements, and the feelings of host communities. Examples of all three types of management have been the source of conflict and criticism (Lassailley-Jacob 1993). Aid agencies and local governments tend to prefer camp or organized settings as they facilitate distribution of care, rations, and infrastructure while keeping populations under more control. Refugees often prefer self-settlement situations. Camp opponents reiterate arguments that organized settlements can undermine local institutions, foster dependency of refugees on aid organizations, and create hostility between refugees and hosts (Harrell-Bond 1998).

Settlement patterns are an important factor in refugee impact on natural resources. Jacobsen (1997) affirms that there are many factors that influence both refugees' environmental impact and their integration into the host society. While the author lists length of time which refugees are displaced to an area, size and ratio of displaced population to local communities, relationship between refugees and host communities, and adequacy of international aid as such factors, one of the most important factors is the way that refugees are settled. Camps can prevent refugees from having access to agricultural activities, which can lead to conflict. Residents in Whitaker's (2002) Tanzania study reported higher theft of agricultural crops where refugees were kept in camps and a decrease in theft when they began farming. Camp settlements concentrate refugees, and consequently the environmental impact, into a smaller area, while local integration allows refugees and any environmental impact to spread through many villages and localities. Jacobsen (1997) notes that this type of settlement has the least direct and indirect

environmental impacts. Further, self-settlement and integration into the local community allows for more

transfer of knowledge in conservation techniques, resource use laws and customs, and opportunity for

land tenure acquisition between refugees and local community. This leads to a greater sense of belonging

and increased levels of investment in the community.

The relationship between refugees and host communities is important as poor relationships have

the potential to lead to further conflict. Land use patterns around refugee settlements may be the primary

cause of tensions between refugees and host communities. Lassailey-Jacob (1993) describes the

frustration of the local community when refugees burned crop areas through setting fires as a method of

hunting wild game. Where land is plentiful, host communities often are more welcoming, and happy to

have more hands to work the land. Where there is a shortage of land or other resources, conflict is likely

to emerge, as host communities feel the encroachment on their territory.

Environmental scarcity does not necessarily always lead to conflict, but can result in

collaboration. Whether environmental impact leads to conflict or cooperation depends on a number of

variables including culture, history of a region and people, and population numbers (Martin 2005). New

natural resource management patterns and creativity may lead to collaboration rather than conflict. The

Namaalwa et al. (2011) study of agroforestry as a land conflict strategy found that 75% of a study sample

in Western Uganda felt that agroforestry had something to contribute in mitigating land conflicts. Three

ethnicities were studied and included sedentary crop farmers and pastoralists, who are often involved in

land conflicts from overgrazing or crop destruction. Most considered agroforestry to be a possible land

conflict remedy because it could create fodder for livestock, reduce grazing pressure on fields, improve

soil fertility, increase overall agricultural productivity, and provide live boundaries to manage conflict.

Black (1998) finds Esther Boserup's (1965) research particularly relevant to the conversation of refugees

and environmental impact, as her findings show that population pressure itself can lead to innovation and

the development of new technologies, including in farming systems.

Factors beyond natural resource use also play a role in refugee-host relations. Settlement patterns

affect relations, and in areas where local integration is possible, there is a higher possibility of positive

host-refugee interactions. Jealousies can be felt by local population members when refugees are given great assistance and host community members are not (Lassailley-Jacob 1993; Whitaker 1999; Martin 2005; Horst 2006; Adjaloo et al. 2008). On the other hand, refugees bring with them foreign aid, provide cheap labor and increase markets, and host communities may reap the benefit of this aid (Whitaker 2002). Jacobsen (1997) notes that "Refugees can lead to improved water situations in some host countries (as occurred in Malawi) because of the construction of new water points available to locals and refugees and the arrival of foreign technical experts who assist local water departments with water quality monitoring."

While refugees may impact the local economy, social structures, and environment both positively and negatively, benefits and detrimental effects are not evenly shared by all (Whitaker 2002). Whitaker's (2002) Tanzanian study found that women were less able to reap the economic benefits of increased markets and labor, and were more directly negatively affected by environmental impact, such as deforestation. She explains that responsibility of certain crop sales shifted from women to men when the prices for those crops increased due to higher demand because of population increases. Likewise, young community members were more likely to take advantage of increased business opportunities due to refugee influxes.

2.3 Agricultural and Tree Planting Programs in Refugee Contexts

While agricultural programs in refugee populations have traditionally concentrated on food production, UNHCR has begun incorporating sustainability and environmental impact aware programs, which Black (1998) attributes to a greater focus in sustainability by development and humanitarian organizations in general. However, there are challenges in implementing these programs.

With lack of permanence and uncertainty, it can be difficult to engage refugees in the process of tree planting, as trees take much longer to give a return (Unruh 1993; Ghimire 1994). Where refugees are settling permanently into the community, tree planting becomes more of a viable activity from which they will reap direct benefit. There are exceptions, and some refugees in temporary camp settings do engage in tree planting efforts, knowing they will not reap the benefits, while others who are permanently settled

in a village may still express hesitancy, having experienced upheaval and change, and feeling uncertainty that they might be forced to leave again. An additional challenge is that in Africa, tree-planting is often equated with ownership. If land is scarce or host communities feel that refugees are claiming unallocated land for themselves, tree-planting by refugees can result in conflict (Laurent and Mathieu 1994).

Resettlement efforts must tailor land use designs and programs to the specifics of host and refugee land use patterns (Unruh 1993). Including refugees in planning is essential for developing a representative and successful natural resource management system. Schraeder (1986) calls for more implementation of land use strategies suggested and implemented by refugee pastoralists in Somalia. Where there is discord between land use patterns of refugees and host communities, more environmental degradation may occur.

Refugees may implement land use patterns which use more marginal natural resources; conversely, refugees may use conservation farming techniques that they bring with them. These techniques may be transferred to the local community in ways that improve local environmental resource use. Innovation by refugees is an important part of resettlement (Unruh 1993). Refugees are more frequently being seen as potential agents of development in the areas that host them (Horst 2006). While knowledge brought to a new place by refugees can create innovation and adaptation, regionally and culturally relevant conservation farming techniques introduced to a region by development organizations during a time of refugee influx can be integrated into land use management practices by both refugees and host community members.

2.4 Identity and social group collaboration

Many agroforestry studies have examined community member and farmer group preference for specific techniques, but they have ignored an equally vital factor in both agroforestry extension and natural resource management: how people prefer to carry out such techniques in social groups. Taking into account the importance of refugee-host relations, it is evident that social relations and the arrangements of people working on these projects are integral to understanding what will make a project

successful or not, and thus what kind of impact it could have. Identity could be a key factor in determining farmer preference for social implementation of agroforestry projects.

Identity plays a role in relationships between diverse groups of people in communities and is particularly important to levels of integration or success of community building in villages where refugees are living (Hewstone and Greenland 2000; Hornsey and Hogg 2000a; Hornsey and Hogg 2000b). In some instances refugees and local villagers share ethnic backgrounds and may have an easier time integrating into new communities because of these ties. Others note, however, that shared kinship does not necessarily influence relations between refugees and local community members. Jacobson (1997) writes that "Much is made in the research literature of the importance of refugee's ethnic or kinship ties with local people as a factor in their ability to integrate themselves into the community. Empirical research suggests, however, that while these kinds of ties help in securing land, they are not necessarily indispensable." The divide between refugees and host community members could be strong despite ethnic ties. This suggests that other identities may be in play.

Hewstone and Greenland (2000) note that because individuals may be cross-categorized (part of different groups simultaneously) they may be an "outgroup member" under one categorization such as status as refugee, but an "ingroup member" for another, such as religion or ethnicity. It is often where multiple converging social categorizations as outgroup or ingroup exist (i.e. when someone is an outgroup member for multiple categories) that there is more conflict between groups.

Social contact theory argues that relationships between two groups can be improved when contact between the two groups exists (Allport 1954; Pettigrew 1998). Contact between groups can also cause conflict, especially where there are inequalities of resources (Hewstone and Greenland 2000). Certain conditions for beneficial contact include 1) group members have equal status, 2) contact should be prolonged, meaningful, and pleasant, allowing group members to get to know each other beyond a superficial level, and 3) there must be support of social groups and authorities (Hornsey and Hogg 2000). Additionally, contact is improved when both groups are able to work together towards a common goal.

Brewer and Miller (1988) identify three ways that contact works to change attitudes. First, it can change attitudes about the group as a whole, making it more positive due to personal experience with a group member. For example, where someone may hold the view that refugees are lazy, if they work with one refugee who is hard-working, it may change their view of the whole group. Secondly, it can lead to more perceived variability of the group. A refugee may have an opinion about Cameroonians as a whole, but through working with some, may see that there is variability among group members, and this may break down stereotyping of the group. Finally, it can lead to less use of category labeling, where people no longer see the categorization of people in group terms as relevant or useful. After time, Cameroonians may see that there is really no difference between refugees and Cameroonians and so the term "refugee" no longer applies.

Working on community-based agricultural projects is one way to create an atmosphere of beneficial contact between refugees and host community members. Hewstone and Greenland (2000) note that often it is necessary to purposefully bring about contact between groups, because without proactive involvement, many people avoid intergroup contact. This is a role that many aid organizations try to play. In order to effectively play this role it is helpful to understand the background and role of various types of identity of the potential participants. Identity theory offers a valuable tool toward this end.

Hornsey and Hogg (2000) present a theory of subgroup relations, laying out historic ideas of cultural identity and depicting a spectrum of relationships between subgroup and superordinate identities. On one end of the spectrum, each subgroup within a population has a strong identity and there is no binding superordinate identity. This is often referred to as Multiculturalism. On the other end, all subgroup boundaries and individual identity melts away as the individuals take on the identity of the larger superordinate group. This is often termed "Melting Pot Assimilation". There have been critiques of both ends of the spectrum. Multiculturalism, while celebrating uniqueness, keeps people from relating to other members of their community who may be of different groups. Assimilation denies the worth of the uniqueness of smaller group identity which has the potential to lead to loss and resentment (i.e.

14

identity threat). Both ends of the spectrum create challenges for members of different subgroups to work together.

In response, Hornsey and Hogg (2000a) describe two better models of intergroup relations, located closer to the middle of the spectrum. The *common ingroup identity model* explains that beneficial contact between two separate groups changes the groups (us and them) to one inclusive superordinate group (we). Through the process, subgroup boundaries are eclipsed by a more inclusive superordinate group identity. Each member is "playing on the same team." According to this theory, if members of different subgroups are categorized by a larger group, their feelings about the other co-members will improve. This outcome is achieved by drawing attention to already-existing superordinate identities or by creating a new overarching group. The more contact that subgroup members have with members of other subgroups, the less bias they might have towards another group. This model moves closer to the center from multiculturalism. In the *mutual intergroup differentiation model* a greater superordinate identity encompasses all individuals, but subgroup identities are recognized and specific abilities and skills appreciated. This can reduce identity or distinctiveness threat, because often, it is impossible to discard a valued social identity. This model moves closer to the center from assimilation. In both cases, subgroup identities are not completely abandoned. The authors agree that in order to have harmonious relations between subgroups it is necessary to minimize distinctiveness threat. Thus they maintain that "social harmony is most likely to be achieved by maintaining, not weakening subgroup identities" (Hornsey and Hogg 2000a).

This theory is relevant to areas with refugee settlement in host community villages. If there are to be harmonious relations it is necessary to integrate two distinct groups. While refugees must become part of the greater village community and adopt that identity, it may also be necessary that they maintain their own traditions and identity. This becomes interesting in natural resource management, as each group must learn to work together in the utilization of natural resources and participation in agriculture. Because members of both groups may have varied backgrounds and agricultural systems, it opens up opportunity for transfer of knowledge and an environment of learning in order to work out the best

methods for community agricultural management. Using an appropriate research methodology which gathers information on community agroforestry preferences and group relations in a refugee setting will provide more useful information for the development of beneficial community programs and an environment of learning.

2.5 Selecting an Appropriate Methodology

In working in developing world village contexts, it is necessary to adopt relevant techniques for gathering information. Often traditional methods of surveying are ineffective or impossible to carry out. Participatory methods and research techniques using art are two ways to ensure better communication, participation, comfort of participants, and more reliable data. Participatory methods are also good tools for working in social research of agroforestry systems.

While participatory methods have come under criticism for not being rigorous enough or not offering options for statistical analysis, others have shown that it is possible to create creative participatory research methods, including games and illustrations which can be analyzed quantitatively (Kuntashula and Mafongoya 2005). Kelso and Jacobson (2011) used visual aids in their methods of assessing agroforestry preferences in a community in South Africa to help improve communication and spatial understanding during focus group discussions, break down educational barriers, and reduce misunderstandings. They also found that combining oral and visual methods ensured higher participation in group discussions, regardless of educational background.

Many agricultural ranking techniques use visual illustrations which participants use in the ranking process. Markemann et al.'s (2009) study of farmer preferences for llama keeping used 10 illustrations of functions for llama use. Participants arranged these illustrations in order of their preference and results were analyzed using a rank-based t-test pairwise comparison and a nonparametric Wilcoxon rank-sum test. Pingali et al.'s (2001) used community educational sessions and 4 illustrations of potential agricultural outcomes in their study of farmer preference for agricultural technologies; farmers ranked each of the four options in order of their preference.

Collier's (1957) study of migrant relations used photographs to assist in the interviewing process, and found that the use of photographs as an aid improved the process on many levels. They aided rapport between interviewer and participants, made people more comfortable, and made the interview process more enjoyable for participants. Where participants were previously tense or apathetic, they were excited about looking at his photograph prompts and were more engaged in the research process. Arts-based research methods can be empowering for participants in that they allow them more control and opportunity to share their experiences through the creative process (Leavy 2009).

Beyond comfort of the participant, Collier (1957) found that the use of photographs helped to keep the interview focused, providing rich information that was more connected to the research questions in contrast to more broad and general responses typical in open ended interviews. Interviews with photographs generated a greater quantity and more specific information. Visual aids are a way to keep the interview more research subject based, enhancing richness and depth.

Knowles and Thomas's (2002) study of students' sense of place in school found that using art as a research method was a method of inquiry as well as a springboard for qualitative inquiry. Students created art, which was data itself, and then were able to describe and explain the art they created, giving further qualitative information. They found that this arts-based approach allowed them to have more understanding than conventional qualitative interviews would allow.

The use of visual aids can also act as a language bridge, filling in with pictures what language might be difficult to convey through translation. Collier's (1957) study found that where researchers lacked technical knowledge to ask questions pertaining to equipment at factories, photographs depicted scenes and participants freely described and used technical language relevant to them, thus providing more information. Where translation into other languages may be challenging, visual aids jump this barrier by being a universally comprehended medium. Collier (1957) suggests that rural people may be more compelled by graphic imagery in its ability to stimulate memory, emotion, and engagement.

In her book *Method Meets Art*, Leavy (2009) claims "In one sense, visual arts-based methods are necessarily participatory—that is, visual art has an audience who experiences it." She outlines four ways

that social researchers can incorporate visual arts-based methods into their research: 1) using art that exists independent of the research to study something it articulates; 2) having participants create art to express an aspect of their lives; 3) creating visual models to assist data analysis; 4) creating art as representation of the data. Using illustrations or "researcher-generated" imagery as opposed to photographs allows the participant to work in a more abstract plane. Photographs can be too specific or detailed (Pauwels 2011). Because an illustration of a field will not look specifically like any actual field, it represents enough symbolically and it can become what the participant needs it to be. Thus when using methods that include visual imagery, research will be more successful by creating illustrated images rather than using photographs.

2.6 The Ethics of Research in Refugee Contexts

There are many ethical concerns raised in doing research in refugee populations. A tension exists between the need to protect vulnerable populations and the need of evidence-based aid protocols and programs carried out in such contexts (Leaning 2001). Practitioners want access to research based information to provide the best care possible. This creates a stronger drive for research in such contexts than in non-conflict environments because the need is intensely felt. For example, the effectiveness of various nutrition supplement programs or the rates of transmission of disease are significant subjects and those working to provide care feel the imperative of discovering good research-based solutions.

Refugee camps are also places of high population density. This can be attractive to researchers in that they provides a high and easily accessible sample for studies (Leaning 2001). Beyond refugee camps, disaster victims are vulnerable to "research overload" due to the drive to provide research results that might help response and aid (Barron Ausbrooks et al. 2009). Some refugee research participants report feeling burdened by being subjected to multiple research studies (Fleischman and Wood 2002). The density of research studies in a given population is something to be aware of when selecting participants for a study, and should play into the conversation of ethical practice.

There is extra need for protection of these populations who are vulnerable on many levels. Because of what they have been through, they are psychologically and emotionally vulnerable. Participation in research studies can pose more of a threat to them than people in other contexts, because often they remain targets because of the original conflict or their status as a refugee. Lapses of confidentiality, such as reporting refugee stories with their name or photo, result in refugee research participants finding themselves in greater danger (Jacobsen and Landau 2003; Hugman et al. 2011a; Hugman et al. 2011b).

The requirement for ethical treatment of research participants is higher in these populations, yet the context provides more of a challenge in applying protection than in traditional research settings. Gaining truly informed consent may be a challenge because of language, culture and educational backgrounds (Leaning 2001; Hugman et al. 2011a). Like disaster victims, refugees need services, and as a result they can be easily manipulated (Barron Ausbrooks et al. 2009). Without the protection of citizenship and security of a place and future, refugees live without many rights and may not feel they have the right to refuse to participate in research studies. They also may be more likely to want to participate, hoping that this may secure a better position or more favor through aid from researchers who are seen as powerful outsiders or aid agents (Hugman et al. 2011a). It can be difficult for people in these contexts to differentiate between researchers and aid workers, and often this connection is hard to fight against and can cause complications in consent, expectations, responses to please the researcher, and misunderstanding of the long-term responsibilities of the research (Hugman et al. 2011a).

On the other hand, in contexts of conflict, some participants may be more willing to share information, not out of a feeling of obligation or hoping for aid, but due to the desire to tell their story so that their voice would be heard and documented (Wood 2006). Certain cultural norms and education levels may mean that signing a legal consent form is not an appropriate practice and others have noted that written consent forms can pose a risk to the security of participants linking them to giving information (Wood 2006; Hugman et al. 2011a). In addition, describing the process of consent and confidentiality protocol can cause initial confusion, distrust or fear among participants who may not

understand the purpose of it (Wood 2006). The use of translators, often necessary in this context, can lead to more risk or compromise confidentiality if they are from the region, or worse, part of local aid agencies working with the population (Jacobsen and Landau 2003; Wood 2006).

Some raise the question of the need for the research to directly benefit participants. If participants are giving their information, but never receiving anything of substance in return, does this really do no harm?   As such, there are researchers who argue that research in vulnerable populations must not just "do no harm," but must do good, and impact the lives of participants in a positive way (Mackenzie et al. 2007).

Due to these challenges, it is imperative that researchers be aware of the vulnerabilities that people in this context experience and the risks they are subject to. Researchers must also be aware of the power differentials that exists in such contexts and the fact that more might be required of them than getting verbal or written consent, in order to truly respect the humanity and agency of participants (Hugman et al. 2011a). It is extremely important for researchers to be explicit about the benefits (or non-benefits) of participating in the research and to be explicit about unafilliation with aid or governmental groups working in the area (Wood 2006). In her work in El Salvador during the civil war, Wood (2006) gave her participants an outlet for redress, explaining to them that if they had any questions or complaints, they could approach the local university or local priests who were respected by members on both sides of the conflict as well as authorities of her home university.

Some researchers are seeking creative means to enhance human agency and consent by promoting the practice of participatory action research in which the participants involvement in decision making in the research process means that they are actively giving consent (Hugman et al. 2011a). There are researchers who have worked with groups only upon the acceptance of the group to work with them. This group consent means that the community members make a decision together to be a part of the project, and it is followed by individual consent. Other projects allow participants to play a part in deciding what is done with research results and figuring out how to put results to use, which gives them a

benefit to participating in the project. There is an emphasis on relationship building and research over a long period of time, to develop trust which tends to allow more human agency (Wood 2006).

Fleischman and Wood (2002) suggest that there should be more communication and collaboration between research institutions in the wake of disasters to prevent "research overload" among potential participants and to ensure that research is being conducted in the interests of the participants and victims. Critiques of these methods and trends exist, particularly pertaining to the resources and time they take, as well as questions of bias and ethics that may be raised due to closer relationship of researcher and participants (Mackenzie et al. 2007; Hugman et al. 2011b).

There are other concerns regarding research in refugee contexts. Field researchers often experience stress loneliness and the emotional drain of working in a foreign culture. When working in areas of conflict or among vulnerable populations, this stress is increased and can cause intense emotions of grief, fear, anger, and pity through observing and listening to the stories of those who have experienced violence and loss. This can also be combined with a fear of danger to oneself and the stress of keeping information secure and confidential (Wood 2006). Role conflicts can arise as the investigator simultaneously participates with the community they are studying, the society they are from and the scientific community, each with their own ideas, history, needs and goals. Existing in three communities can cause emotional strain for the researcher (Kloos 1969). Researchers must be aware of these stressors and how they can cause a higher risk of lapses of judgment and errors.

In their content analysis of the *Journal of Refugee Studies*, Jacobsen and Landau (2003) describe how the field of refugee studies often misses the bar in academic rigor. They explain that the challenging environment in which researchers are working means that certain practices in traditional research may impossible to carry out. As a result, there is a trend of research in this field to fail to follow and explain a strict methodology for their work. Many studies do not seek to create a random sample and most do not explain any method for finding their sample. The authors call researchers working in this field to adhere to stronger methodology and ethically sound practices so that the resulting data from such studies would be robust and trustworthy enough to advise policy decisions.

Jacobsen and Landau (2003) also bring up the importance of translation or interview effects. It can be very important to use a translator who is not from the area of study, as multiple complications can result from using someone from the region of study. If interviewers are a member of one ethnic or linguistic group this can cause a bias and/or make certain individuals less likely to open up to them, feeling that the interviewer may be on the "other group's side." Additionally, there are issues of confidentiality as interviewers who are from the region of study may learn sensitive information on interviewees and would have more difficulty separating that information from future interactions outside of the research. This means that the research team must strike a balance between finding someone who is culturally relevant, able to understand and communicate with the research participants and yet have no strong connections to the specific region of study or any one group represented by research participants.

2.7 Summary

Through this literature review, I examined research on 1) agroforestry use and preferences; 2) refugee contexts and impact on natural resources; 3) refugees and host community relations; 4) theories of identity and group relations; and 5) ethics in refugee research, with the goal of supporting a research study on agroforestry preferences, social relations and identity, and collaboration potential among refugees and host community members. This literature review shows that there are important gaps in the areas of preferences for social implementation of agroforestry practices as well as research on agroforestry in the context of refugee and host community populations.

In summary, sub-Saharan Africa is faced with many ecological and social challenges which directly impact agriculture and livelihoods. Agroforestry provides a means of addressing ecological challenges as well as a tool for collaborative agricultural resource management, and the challenges that agroforestry responds to are even more relevant in scenarios of refugee settlement. Identifying household and community needs as well as interest in specific agroforestry techniques is necessary before implementing aid programs and understanding the social relations between refugees and host community members is an important element of understanding how community members would prefer to carry out

agroforestry techniques. Theories on subgroup relations and identity can inform on community relations, social arrangements in field work, and best potential for collaboration.

Thus there is a need for a study that focuses on agroforestry preferences among community members and group identity to create a picture of potential collaboration or separation in agricultural projects. This type of research could provide information that would be helpful in policy making and the development of programs and practices in such communities, which would 1) benefit the environment through conservation, 2) would benefit refugees and host community members through the improvement of soil fertility, field protection, and food, fuel and fodder production, and 3) would benefit all community members through awareness of elements of social identity in relation to collaboration which is necessary for integration and cooperative natural resource management.

CHAPTER 3. AGROFORESTRY PREFERENCES IN REFUGEE HOSTING COMMUNITIES IN CAMEROON

3.1 Introduction

Agroforestry has a long history of use in tropical areas, especially Sub-Saharan Africa (Nair 1993). In this region, besides providing food and sources of livelihood, agroforestry is often used to address environmental challenges, including desertification, deforestation, soil degradation, water quality and quantity, and drought and flooding (Nair, 1989). Practices common to Sub-Saharan Africa include windbreaks, live fences, alley cropping, cut-and-carry fodder systems, orchard plantings, home gardens, forest gardens, woodlots for fuelwood and construction wood, improved fallow, and contour farming (e.g., National Research Council Advisory Committee on the Sahel, 1984; Rocheleau et al. 1988; Franzel 1999). At the same time, land scarcity and food security in Sub-Saharan Africa are increasingly sources of human conflict (Franzel 1999; Namaalwa et al. 2011). This is particularly relevant in refugee settlement areas, where increases in population often negatively impact resource sustainability and social relations (Jacobsen 1997; Black 1998).

Sustainable natural resources management and cooperation between refugees and host populations are needed to address many of the environmental and social challenges in refugee settlements. Agroforestry, with its focus on conservation and production along with diverse management options, offers an opportunity to manage these challenges. Integrating trees into farming systems through the use of agroforestry can provide many benefits. Examples include improvement in fuelwood availability, soil fertility, crop protection and diversity, and soil conservation, many of which could also mitigate environmental and social challenges in refugee contexts by securing nutritional and household needs of both refugees and host nationals over the long term.

Agroforestry has its roots in integrated farming systems practiced worldwide for centuries (Jose and Gordon 2008). Because agroforestry has low input costs and mimics natural systems and traditional farming methods, Ogunlana (2004) argues that it is a relevant and effective tool for combating environmental problems and creating positive change in farming systems where resources are limited.

Refugee influxes increase human demands on land, vegetation, wildlife, and water resources (e.g., Lassailley-Jacob 1993; Ghimire, 1994; Jacobson, 1997). While Kibreab (1997) critiques emphasis on environmental impacts of refugees, explaining that they should not be considered "exceptional resource degraders," it is obvious that a sudden increase in population places greater pressure on and potentially impacts natural resources. To counter this pressure, the use of sustainable intensification farming methods is necessary. Agroforestry practices are one means of sustainable intensification, and agroforestry use could help refugees and host community members alike improve their ability to produce food, fuel, and fodder in the face of population growth while also achieving conservation goals without significant capital or materials.

Benefits of agroforestry could also help reduce the potential for intergroup conflict, as land use patterns around refugee settlements are often a source of tension between refugees and host communities (Lassailley-Jacob 1993; Jacobson, 1997; Whitaker 1999; Lawrie and Van Damme 2003). Used as a community-based land management tool, agroforestry could help mitigate some sources of conflict between groups of people. For instance, Namaalwa et al.'s (2011) study of agroforestry as a land conflict strategy in Western Uganda found that a substantial majority of community members believed that agroforestry could help mitigate land conflicts, because it provides fodder for livestock, reduces grazing pressure on fields, improves soil fertility, increases overall agricultural productivity, and demarcates boundaries.

Environmental sustainability programs are becoming more common among development and humanitarian organizations working in refugee situations (Black 1998). To be successful, resettlement efforts must tailor land management programs to host and refugee land use patterns (Unruh 1993). Refugees may implement land use patterns which use more marginal natural resources. Conversely, refugees may use conservation farming techniques which they bring with them, and these techniques may be transferred in ways that improve environmental resource use in host regions. Refugees themselves can be agents of development (Horst 2006). New knowledge can foster innovation and adaptation while regionally and culturally relevant farming practices, such as agroforestry practices, introduced to a region

during refugee influx, can be integrated into land use practices by both refugees and host community members and thereby shape new environmental and social directions.

Environmental scarcity does not always have to be a source of conflict, but has the potential to engender collaboration (Martin 2005). Whether environmental impact leads to conflict or cooperation depends on several factors, including culture, regional history, and social and political arrangements. Similarities and differences across social groups are key elements of integrated community agroforestry projects and should be thoroughly evaluated as a basis for the development of these projects to meet the needs of refugee and host community populations. Each local context may be different and studying local group dynamics and environmental needs opens up understanding on best development of potential agroforestry projects.

3.2 Background

In the past 15 years, an estimated 100,000 refugees from Central African Republic (CAR) have crossed into Cameroon seeking refuge from instability and settled in over 300 villages in the Adamaoua Region (UNHCR 2011) (Figure 3.1). The majority of the refugees were semi-nomadic pastoralists. Most lost their livestock previous to settling in Cameroon and many are learning agriculture for the first time. In most areas, village chiefs have given refugees land to farm where they have settled. The International Medical Corps (IMC) and other nongovernmental organizations (NGOs) presently promote nutrition-focused agricultural programs in the region, in which refugees and host community members take part. Agroforestry could be a successful complement to this program in providing for the needs of both refugees and host community members.

With this background, our research question was how agroforestry might play a role in these communities and what might it look like across different groups in the population. We wanted to know 1) What agroforestry practices community members would be interested in implementing; 2) How community members would be interested in implementing them socially; and 3) Whether there were differences across the social groups of *status* as a refugees or Cameroonian, *gender*, or *ethnicity*.
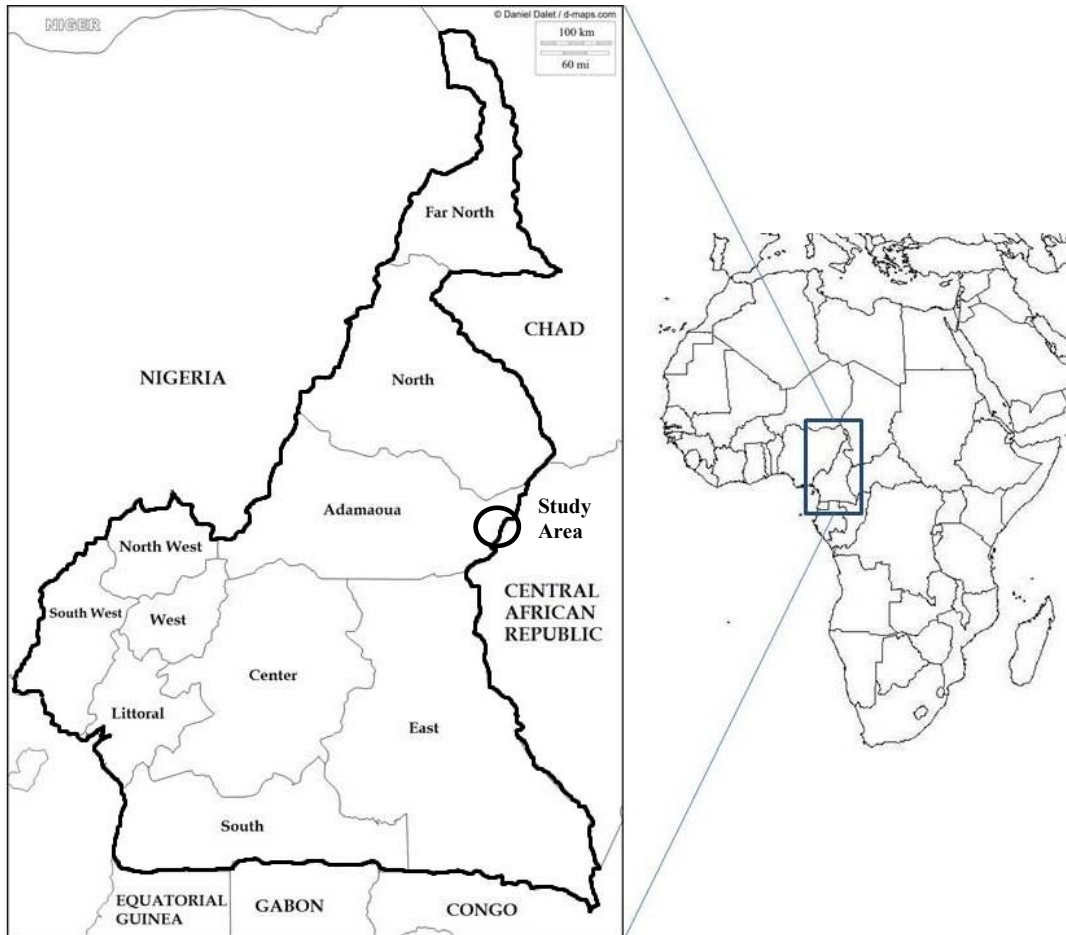
Figure 3.1 Study area within Cameroon. (map adapted from d-maps.com)

3.3 Common Methodology

Farmer preferences can inform on differences and similarities of social groups of which farmers are members, which may be specifically relevant in refugee hosting regions. Understanding farmer preferences for specific agroforestry practices is a critical building block in the development of extension and aid programs (e.g., Kuntashula and Mafongoya 2003; Mekoya et al. 2008; Kelso and Jacobson 2011). Studies with this objective in mind have used a variety of ranking methods to record farmer practice and/or species preferences. Participatory methods are particularly appropriate in the context of conflict or rural populations, providing less obtrusive and non-written avenues for gaining rich information (Collier 1957; Kuntashula and Mafongoya 2005). They are commonly used in agricultural research to evaluate

27

community needs and preferences with the intent of informing program development (e.g., Pingali et al. 2001; Kuntashula and Mafongoya 2005; Kelso and Jacobsen 2011).

Some preference studies have used scaled systems in which each item is ranked on a given range and scores are compared across items. Kuntashula and Mafongoya (2003) surveyed farmer preference for leguminous trees by using a traditional game (bao) to rate 11 tree species. The bao game allowed for each species to be ranked from 1-3 with respect to various characteristics. Similarly, Mekoya et al. (2008) studied rankings of multipurpose fodder trees in Ethiopia using a scale of 1-4 for each species according to several characteristics.

Other preference studies have used rank-order methods where each item is ordered in relation to other items according to preference. Agea et al. (2007) studied farmer preferences for indigenous tree species and used a farmer generated ranking system. Individual farmers independently listed 15 of their preferred species in rank-order and each species was then assigned a score. Scores were added to create a prioritization of all species in the sample. Kelso and Jacobson's (2011) study in South Africa used pairwise ranking for 16 agroforestry practices. Three farmer groups participated in the ranking exercise, providing 3 ranked lists of the 16 practices.

Many ranking studies use visual illustrations to aid the ranking process. Markemann et al.'s (2009) study of farmer preferences for llama farming used 10 use-function illustrations. Participants arranged illustrations in rank order of their preference and results were analyzed using a rank-based t-test pairwise comparison and a nonparametric Wilcoxon rank-sum test. Pingali et al. (2001) used community educational sessions and 4 illustrations of potential agricultural outcomes in their study of farmer preference for agricultural technologies.

A general trend among these studies is that farmers often are most interested in agroforestry practices that directly meet field or household needs or provide solutions to particular farming issues (e.g., Fischer and Vasseur 2002; Johnson and Delgado 2003; Alam et al. 2010; Kelso and Jacobson, 2011). Common preferences include practices that provide fruit, fuelwood, and construction/timber wood, or

conservation benefits. Less understood is how farmers would like to implement preferred agroforestry projects and this is an important gap in agroforestry preference literature.

Farmer groups offer benefits of work support, pooling of resources, and division of labor. Many aid agencies follow this model when working in agricultural development projects, encouraging villagers to form groups or collectives with which they will work, distributing materials, land, and/or training (Davis et al. 2004). While some farmers may generally prefer to work individually or in a group based on personal affinities and household attributes, such choices may also be a reflection of their perceptions of specific agroforestry techniques. As such, social implementation preference is worthy of research in support of agroforestry theory and program development. Agroforestry preference studies are common, yet few explicitly address the nature and impact of group relations on project implementation. Evaluating social aspects of implementation would add to our understanding of group dynamics as they relate to the success of agroforestry projects, particularly in the context of refugee settlement in host communities. In these settings, such knowledge can guide environmental and social cooperation between refugee and host community members, which is vitally important as environmental issues are often the center of tension between refugees and host community members.

Another important gap in literature is that there are very few studies on agricultural preferences in refugee contexts, and none looking at agroforestry preferences among refugee and host community populations. While agricultural and natural resource management is so important in refugee contexts, much research on the subject, such as the preference studies referenced previously, does not take place in conflict settings. Migration of groups into an area, and potential for natural resource impacts, adds an important dimension to agricultural preferences and management, and the role of agroforestry, which offers many potential benefits to refugees and host communities, warrants research in these contexts.

Research in refugee settings can offer useful insight for aid and policy decisions, but the nature of the inquiry should be systematic and rigorous to have the greatest impact. In a content analysis of the *Journal of Refugee Studies*, Jacobsen and Landau (2003) argue that refugee field research often lacks methodological rigor due to challenging working environments and difficulties using conventional

methods. The authors issue a call to improve methodological and ethical practices in these contexts so that findings are robust and useful to advising policy decisions. Those working in research in refugee contexts must therefore be aware of some of the challenges to working in such settings, and design research that is both ethical and up to research standards of rigor. We kept these points in mind when designing our methods.

3.4 Methods

In order to answer our research questions, we surveyed CAR refugees and Cameroonians using pre-crafted illustrations of 8 agroforestry practices and a rank order method to study practice and implementation preferences. Data were collected in Djohong District, in the Adamaoua Region of the Republic of Cameroon. This is a region of high plateau (elevation ~4100 fasl) with moderately wooded low scrub savannah. Annual rainfall totals about 1500 mm and mostly falls between March and October. Data were collected from individuals residing in six villages near the border with CAR. Villages were systematically selected based on: 1) existence of Cameroonian and CAR refugee community members; 2) an operational nutritional gardening program administered by the NGO IMC; and 3) location within a 50 km radius from the Djohong village (central base of operations).

One hundred twenty-two individual interviews with Cameroonian and CAR refugee farmers were conducted using participatory visual activities and illustrated props. Village chiefs and IMC liaisons were visited in advance to plan a return visit during which community meetings would be held. The purpose of the research was explained and chiefs were asked to gather community members, varying in age and ethnicity, to form four community meetings using a 2 x 2 matrix according to gender and refugee/Cameroonian status.

In contexts of rural villages and refugee populations, it is often impossible to obtain a list of all inhabitants for sampling purposes (Jacobsen and Landau 2003). In this research the community meetings served to create a frame from which participants could be randomly sampled for individual interviews. To choose interview participants, each community meeting participant was assigned a number which was

then randomly selected. If a selected participant was unavailable or declined to participate, the next number on the list was chosen until reaching the desired number from each group (5-6 based on village size) (after Kiptot et al. 2006).

All participants spoke French and/or Fulfulde. The researcher is fluent in French and proficient in Fulfulde. A single Cameroonian translator from a neighboring region with fluency in French and Fulfulde accompanied the researcher during all activities. Interviews were conducted in French and translated into Fulfulde and consisted of agroforestry practice rank-ordering, an implementation preference activity, and notations on *status* as refugee or Cameroonian, *ethnicity*[1], and *gender*. Open-ended comments and rationale for responses were also recorded when offered.

During community meetings, illustrations were used to demonstrate 8 regionally relevant agroforestry practices: windbreak, alley cropping, contour farming, live fence, fruit trees, sauce leaf trees, fodder trees and fuel wood trees (Figure 3.2). These are common agroforestry practices used in Central and West Africa, and would be applicable to the ecology and farming systems of the study area. Windbreaks are rows of trees planted to slow wind down and prevent damage to crops or homes. Alley cropping is intercropping rows of trees with crops. Typically trees are leguminous and are coppiced to provide green manure to fields. Contour farming consists of planting trees along hillside contours to prevent erosion. Fuelwood trees, fruit trees, sauce leaf trees and fodder trees can be planted in woodlots or interspersed throughout homesteads and fields to provide products for sale or household consumption. Illustrations representing each of these practices included examples, symbols, and narration to help respondents remember what each stood for. For example, the fuelwood illustration included a cookstove with a pot and 2 burning pieces of firewood, while the live fence included cows grazing on the exterior.

---

[1] There are two main ethnic groups in the region, Foulbé and Gbaya. Two lesser ethnic groups existed in smaller number which are linguistically and culturally more closely related to Gbaya. These were grouped with Gbaya for analysis purposes, creating two ethnic groups: Foulbé and non-Foulbé.
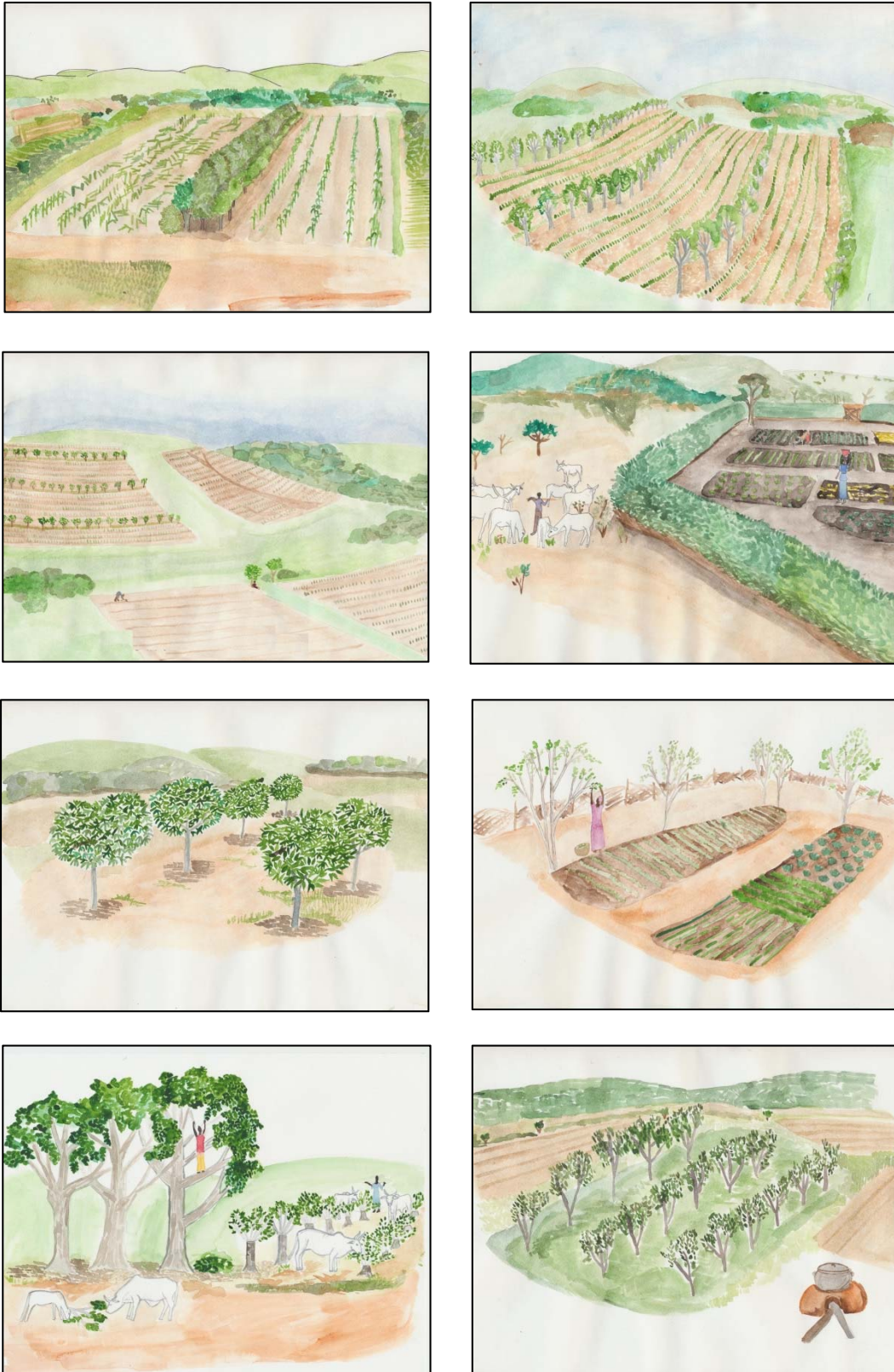
Figure 3.2 Illustrations of 8 agroforestry practices presented and explained to CAR refuges and host national Cameroonian study participants for preference ranking activity. (Illustrated by Elizabeth Moore)

Windbreak   Alley Cropping

Contour Farming   Live Fence

Fruit Trees   Sauce Leaf Trees

Fodder Trees   Fuelwood Trees

Individual interviews used techniques that were informed and refined through a pilot study with

resettled Sudanese and Burmese refugees study in Roanoke, Virginia. At the beginning of each interview,

the eight illustrated agroforestry practices were presented and explained to participants. To ensure comprehension before ranking, a verbal protocol was used where participants were asked to confirm their understanding to the researcher (after Ebling and John 2000). They were then asked to rank illustrations according to use preference, continuing one by one until no illustrated practices remained. A score of 1-8 was assigned to all agroforestry practices for each respondent based on the observed rank-order, where 1=most preferred and 8=least preferred.

To study preferences for implementing specific agroforestry practices, each illustration was shown to participants again following the rank-order activity. Participants were asked if they would prefer to carry out the practice at the household level or in a multi-household group. Responses for each practice were coded according to group or family choices for each respondent, where a group preference received a "0" and family response a "1".

To explore the role and nature of each practice, the 8 practices were divided into two conceptual groups: 1) product-based and 2) service-based practices. Service-based designations were assigned to include windbreak, alley cropping, live fence, and contour farming. They are allocated to this group because they primarily provide a *service* to the field or owner, such as soil fertility improvement, erosion control, or crop protection. Product-based designations were assigned to fruit trees, sauce leaf trees, fodder trees and fuelwood trees. These practices were those which primarily provide a *product* which can be personally consumed or sold. While agroforestry practices often provide multiple benefits, the delineation between *service* and *product* allowed for post-hoc analysis of the purposive nature of primary role preferences.

Because the data are ordinal and nominal, Kruskal-Wallace and Mann-Whitney U non-parametric tests were used to study preferences across the sample. Kruskal-Wallace is used to test for differences across three or more independent groups when the dependent variable is not normally distributed or ordinal. It is a nonparametric alternative to ANOVA and uses rank sums to detect defensible differences in the data. The Mann-Whitney U was used to test for differences in agroforestry rankings across binary factors of *status*, *gender*, and *ethnicity*. The Mann-Whitney U test is used as a nonparametric alternative

to an independent t-test. Each practice also was coded in terms of whether it is a service or product-based practice and Mann-Whitney U was used to test for differences in preferences. Rank sums across all service- and product-based practices were compared for the sample population and across factors of *status*, *gender*, and *ethnicity*. χ^2 was used to test for differences in implementation preferences for service and product-based practices. The Mann-Whitney U and χ^2 were used to test for differences across *status*, *gender*, and *ethnicity* for group/family choices.

Qualitative data were recorded during ranking and implementation activities. Data were in the form of voluntary verbal explanations regarding choices and gathered from about 50% of participants. Notes were taken during the interviews and an audio recorder used to capture participant input. Data were grouped according to themes via open and axial coding. Open coding is the process of creating categories from analysis of the data and axial coding involves synthesizing data relationships. Thematic results are used to refine interpretation of the quantitative results, and these are important in pointing to potential reasoning behind the broader population choices.

3.5 Results

Of the 122 people that participated in the study, 25% were Cameroonian women, 26% refugee woman, 24% Cameroonian men, and 25% refugee men. Twenty-four individuals were interviewed in the villages of Garga Pella, Nabemo, and Fada, 25 were interviewed in Djohong, 20 in Gbagba and 5 in Daniy (Table 3.1). Sixty-two percent were ethnically Foulbé and 35% Gbaya (Table 3.2). Three percent were Pana or Karé, which are two ethnicities related to Gbaya.

Table 3.1 Number of interview participants from each village, divided by Gender as Female and Male and Status as CAR refugee or Cameroonian (n=122).

Village	Cameroonian Women	Refugee Women	Cameroonian Men	Refugee Men	Total
Garga Pella	6	6	6	6	24
Nabemo	6	6	6	6	24
Fada	6	6	6	6	24
Djohong	6	6	6	7	25
Gbagba	5	5	5	5	20
Daniy[2]	0	5	0	0	5
Total	29	34	29	30	122

Thirty-three percent of the sample members were under 30 years old, 38% were between the ages of 30-50, and 29% were 50 years or older (Table 3.2).   Thirty-six percent of the participants were currently involved in IMC nutritional gardening programs. Twenty-five percent were not currently participating but had in previous years, and 39% of the sample had never participated. Average household size was 9 members and number of children 6. Years spent in the village averaged 22 years for Cameroonians and 4.5 years for CAR refugees. It was striking to note that only 9.5% listed livestock as a current occupation, while nearly 64% of refugees said they had been involved in some form of livestock management as their previous occupation. More refugees in the sample had or were participating in the IMC gardening program than Cameroonians in the sample.

---

[2] Daniy was a small village and consisted of only three large households. After working with the women it became evident that all were refugees and they were not living with Cameroonians. It was impossible to meet with the men who were in the bush with the cows, thus two focus groups were conducted with the women.

Table 3.2 Demographic information of all individual interview participants (n=122).

Variable		Total Sample	Refugee	Cameroonian
		Frequency (Percent)	*Frequency (Percent)*	*Frequency (Percent)*
Status	Cameroonian	59 (48.4)	---	---
	CAR refugee	63 (51.6)	---	---
	Total	122 (100)	---	---
Gender	Women	62 (50.8)	32 (50.8)	30 (50.8)
	Men	60 (49.2)	31 (49.2)	29 (49.2)
	Total	*122 (100)*	*63 (100)*	*59 (100)*
Ethnicity	Foulbé	75 (61.5)	43 (68.3)	32 (54.2)
	Gbaya	43 (35.2)	17 (27.0)	26 (44.1)
	Pana or Karé	4 (3.3)	3 (4.8)	1 (1.7)
	Total	*122 (100)*	*63 (100)*	*59 (100)*
Age Group	less than 20	4 (3.3)	4 (6.3)	0 (0)
	20-29	23 (18.9)	13 (20.6)	10 (16.9)
	30-39	30 (24.6)	11 (17.5)	19 (32.2)
	40-49	23 (18.9)	9 (14.3)	14 (23.7)
	50-59	21 (17.2)	13 (20.6)	8 (13.6)
	60-69	15 (12.3)	9 (14.3)	6 (10.2)
	70 and above	5 (4.1)	3 (4.8)	2 (3.4)
	Unknown	1 (0.8)	1 (1.6)	0 (0.0)
	Total	*122 (100)*	*63(100)*	*59 (100)*
IMC Garden Participation	Currently participating	43 (36.4)	30 (48.4)	13 (23.2)
	Participated in previous years	29 (24.6)	15 (24.2)	14 (25.0)
	Never participated	46 (39)	17 (27.4)	29 (51.8)
	Total	*118 (100)*	*62 (100)*	*56 (100)*
Current Occupation	Farming Only	64 (52.5)	43 (68.3)	21 (35.6)
	Farming and Other	36 (29.5)	12 (19.0)	24 (40.7)
	Farming and Livestock	13 (10.7)	5 (7.9)	8 (13.6)
	Livestock Only	4 (3.3)	1 (1.6)	3 (5.1)
	Livestock and Other	1 (0.8)	0 (0.0)	1 (1.7)
	Other (eg. tailor, taximan, etc)	3 (2.5)	2 (3.2)	1 (1.7)
	None	1 (0.8)	0 (0)	1 (1.7)
	Total	*122 (100)*	*63 (100)*	*59 (100)*
Previous Occupation	Farming Only	30 (25.0)	17 (27)	13 (22.8)
	Farming and Other	6 (5.0)	1 (1.6)	5 (8.8)
	Farming and Livestock	15 (12.5)	12 (19.0)	3 (5.3)
	Livestock Only	39 (32.5)	26 (41.3)	13 (22.8)
	Livestock and Other	2 (1.7)	2 (3.2)	0 (0.0)
	Other (eg. tailor, taximan, etc)	7 (5.8)	2 (3.2)	5 (8.8)
	None	21 (17.5)	3 (4.8)	18 (31.6)
	Total	*120 (100)*	*63 (100)*	*57 (100)*
Average Household Size		8.9	8.3	9.5
Average Number of Children		6.0	6.0	5.9
Average Years Spent in the Village		13.2	4.7	22.4

3.5.1 Agroforestry Ranking

In general, ranking ranged widely for each of the 8 agroforestry practices (Figure 3.3). Fruit trees and alley cropping were often more highly ranked. On the other hand, contour farming, fodder tree and fuelwood tree practices were frequently ranked lower. Ranks for windbreak, sauce leaf trees, and live fence were fairly evenly distributed. According to Kruskal-Wallace tests, 17 of the 28 pairwise ranked combinations differed significantly ($\alpha=0.05$).

Fruit Trees[a]

n=122

Mean=3.1
Median=3

Windbreak[cd]

n=120

Sauce Leaf Trees[ab]

n=122

Mean=3.6
Median=3

Fodder Trees[cd]

n=122

Mean=5.0
Median=5

Alley Cropping[ab]

n=122

Mean=3.7
Median=3.5

Fuelwood Trees[de]

n=122

Mean=5.5
Median=6

Live Fence[bc]

n=121

Mean=4.4
Median=4

Mean=6.0
Median=6

Contour Farming[e]

n=121
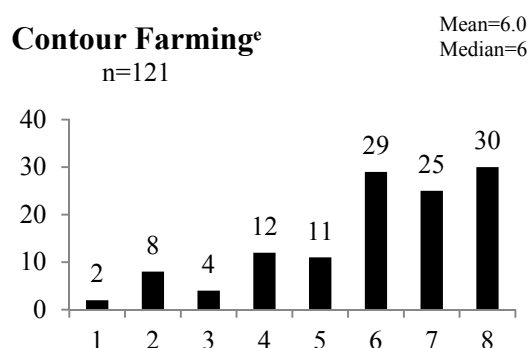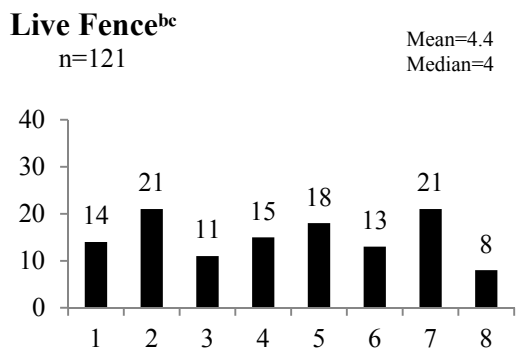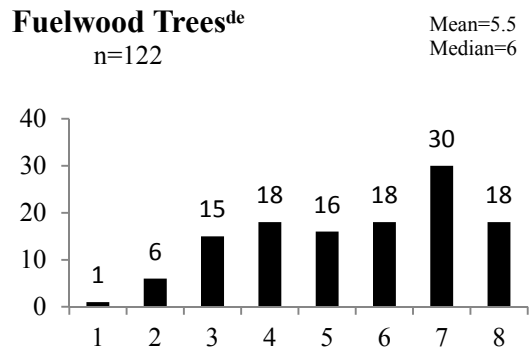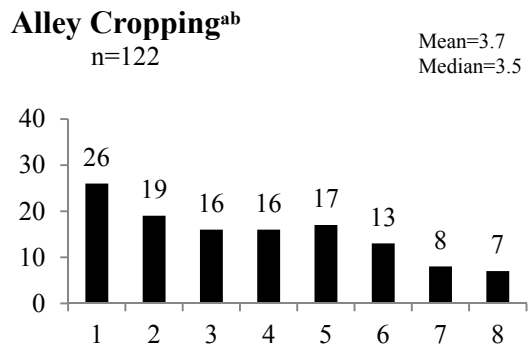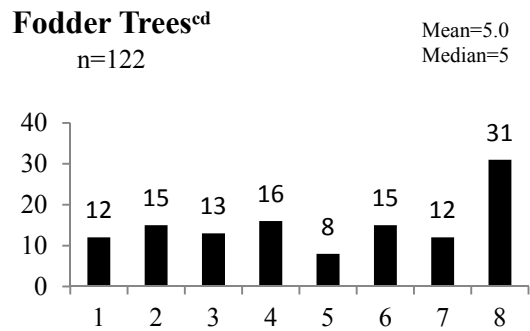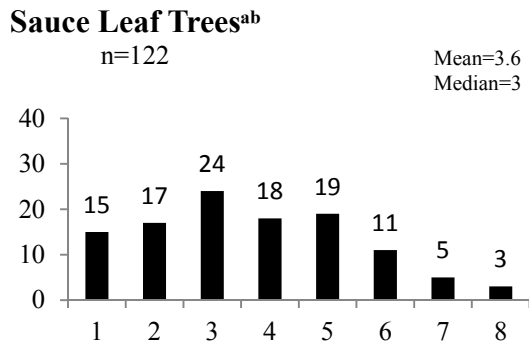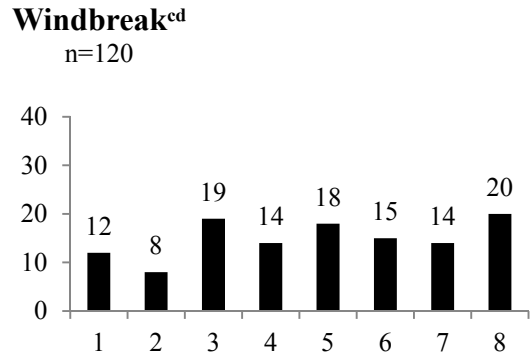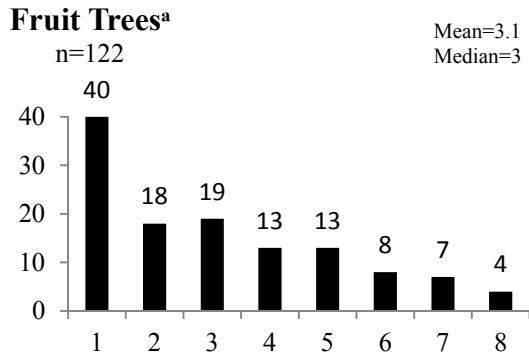
Figure 3.3 Frequencies of rank scores for each agroforestry practice listed, with mean and median. Practices that do not share superscript letters are significantly different (α=0.05). Lower mean scores indicate the practice was more preferred than those with high.

In terms of status, refugees and Cameroonians differed in preferences for windbreak, fruit trees, fodder, and fuelwood practices (Table 3.3). Cameroonians ranked windbreak and fodder trees higher and refugees were more likely to prefer planting and managing fruit trees and fuelwood trees. There were no differences between refugees and Cameroonians in rankings of alley cropping, contour farming, live fence, and sauce leaf trees.

Ranks for two practices significantly differed between Foulbé and non-Foulbé ethnic groups. Foulbé had a mean windbreak rank score of 5.2, whereas the score among Gbaya, Pana and Karé was 4.2. Foulbé as a whole ranked fodder trees lower than non-Foulbé groups, with a mean rank score of 4.3 compared to 6 for Gbaya, Pana, and Karé. Among men and women, only one rank score differed significantly. The mean rank for fuelwood among women was 5.1 and 5.9 among men.

Table 3.3 Mean rank scores of agroforestry practices across variables of Status, Gender and Ethnicity with significance values based on Mann-Whitney U nonparametric tests.

Practice	Status			Ethnicity			Gender		
	Cameroonian	Refugee	*P*	Non-Foulbé	Foulbé	*P*	Female	Male	*P*
Windbreak	**4.3**	**5.2**	**0.01***	**4.2**	**5.2**	**0.02***	5.1	4.6	0.19
Alley Cropping	3.7	3.7	0.89	3.8	3.6	0.51	3.6	3.8	0.68
Contour Farming	6.0	5.9	0.49	5.7	6.1	0.18	5.9	6.0	0.48
Live Fence	4.3	4.4	0.89	4.2	4.5	0.49	4.6	4.2	0.29
Fruit Trees	**3.6**	**2.7**	**0.03***	2.8	3.3	0.39	3.2	3.0	0.81
Sauce Leaf Trees	3.7	3.4	0.49	3.5	3.6	0.58	3.4	3.7	0.28
Fodder Trees	**4.5**	**5.4**	**0.03***	**6.0**	**4.3**	**0.00***	5.2	4.8	0.41
Fuelwood Trees	**5.9**	**5.2**	**0.03***	5.6	5.4	0.55	**5.1**	**5.9**	**0.02***

Bold* indicates significant differences (α=0.05)

Mann-Whitney U tests indicate product-based practices often were ranked significantly higher than service-based practices (α=0.05) (Table 3.4). Test results showed that Cameroonians, men, and non-Foulbé did not demonstrate a ranking preference for service- or product-based practices. On the other hand, refugees, women, and Foulbé ranked product-based practices significantly higher than service-based practices.

Table 3.4 Mean rank scores for service- and product-based practices.

		Mean Rank		
		Product	*Service*	*P*
Total Sample	---------------	4.28	4.71	**0.00***
Status	Cameroonian	4.41	4.58	0.41
	Refugee	4.17	4.83	**0.00***
Ethnicity	Foulbé	4.15	4.85	**0.00***
	Non-Foulbé	4.49	4.51	0.97
Gender	Women	4.21	4.79	**0.01***
	Men	4.37	4.63	0.20

Bold* indicates significant differences (α=0.05)

Note: High mean ranks are less preferred, low mean ranks are more preferred. Significant differences are derived from Mann-Whitney U nonparametric test, achieved by selecting cases of each variable (*Status*, *Gender*, and *Ethnicity*) and testing ranks across all product- or service-based practices.

3.5.2 Agroforestry Implementation Preferences

For 5 of the 8 agroforestry practices, a majority of the sample preferred group implementation (Table 3.5). Conversely, the majority preferred to implement fruit tree, sauce leaf tree, and fuelwood tree projects as a family. While preferences for most practices are evenly split, χ^2 test results indicate more respondents preferred to implement service-based practices as a group, whereas preferences for product-based practices were more often family oriented (Table 3.6).

Table 3.5 Percentages of total sample choosing to implement each practice as a group or family (n=122).

Practice	Group	Family
Contour Farming	58.2%	41.8%
Live Fence	57.0%	43.0%
Windbreak	55.7%	44.3%
Fodder Trees	52.5%	47.5%
Alley Cropping	51.6%	48.4%
Fuelwood Trees	48.4%	51.6%
Sauce Leaf Trees	45.0%	55.0%
Fruit Trees	37.2%	62.8%

Table 3.6 Crosstabulation for Family or Group implementation of service- and product-based agroforestry practices across the total sample.

		Service-based Practices	Product-based Practices	Total
Family Implementation	Count	216	263	479
	%	44.4	54.2	49.3
Group Implementation	Count	271	222	493
	%	55.6	45.8	50.7

Pearson χ² 2-sided asymptotic significance=0.002

Frequencies and percentages represent how many times service- or product-based techniques were chosen for family or group implementation across the sample and all agroforestry practices.

Refugees and Cameroonians generally chose to implement 3 practices in the same arrangement (Table 3.7). A majority in both groups chose to implement fruit tree projects and sauce tree practices as a family and contour farming in a group. For the 5 remaining practices, Cameroonians and refugees generally leaned in opposite directions. Of these 5 differences, windbreak, live fence, and sauce leaf trees are statistically significant. Most Cameroonians preferred family implementation for windbreak, alley cropping, live fence, and sauce leaf trees, whereas most refugees chose group implementation in each of these cases. Fodder trees was the only case where a majority of refugees chose family and Cameroonians chose group implementation. The majority of men chose group implementation for windbreak, contour farming and live fence and family implementation for the other 5 practices. The majority of women chose family implementation for fruit trees and sauce leave trees. Women were evenly split for fuelwood trees

implementation, and the majority chose group implementation for the remaining 5 techniques.

Differences in preferences for group and family implementation between men and women and Foulbé and

non-Foulbé were small and not statistically significant.

Table 3.7 Preferences among Cameroonians and CAR refugees for Group or Family implementation of agroforestry practices.

| | Cameroonian | | CAR Refugee | | *P* |
	Family (%)	Group (%)	Family (%)	Group (%)	
Windbreak	**34 (57.6)**	**25 (42.4)**	**20 (31.7)**	**43 (68.3)**	**0.00***
Alley Cropping	33 (55.9)	26 (44.1)	26 (41.3)	37 (58.7)	0.11
Contour Farming	26 (44.1)	33 (55.9)	25 (39.7)	38 (60.3)	0.62
Live Fence	**31 (52.5)**	**28 (47.5)**	**21 (33.9)**	**41 (66.1)**	**0.04***
Fruit Trees	38 (64.4)	21 (35.6)	38 (61.3)	24 (38.7)	0.72
Sauce Leaf Trees	**38 (64.4)**	**21 (35.6)**	**28 (45.9)**	**33 (54.1)**	**0.04***
Fodder Trees	26 (44.1)	33 (55.9)	32 (50.8)	31 (49.2)	0.46
Fuelwood Trees	30 (50.8)	29 (48.2)	33 (52.4)	30 (47.6)	0.87
	Women		Men		*P*
	Family (%)	Group (%)	Family (%)	Group (%)	
Windbreak	27 (43.5)	35 (56.5)	27 (45.0)	33 (55.0)	0.87
Alley Cropping	28 (45.2)	34 (54.8)	31 (51.7)	29 (48.3)	0.47
Contour Farming	25 (40.3)	37 (59.7)	26 (43.3)	34 (56.7)	0.74
Live Fence	27 (44.3)	34 (55.7)	25 (41.7)	35 (58.3)	0.77
Fruit Trees	40 (64.5)	22 (35.5)	36 (61.0)	23 (39.0)	0.69
Sauce Leaf Trees	33 (55.0)	27 (45.0)	33 (55.0)	27 (45.0)	1.00
Fodder Trees	27 (43.5)	35 (56.5)	31 (51.7)	29 (48.3)	0.37
Fuelwood Trees	31 (50.0)	31 (50.0)	32 (53.3)	28 (46.7)	0.71
	Foulbé		Non-Foulbé		*P*
	Family (%)	Group (%)	Family (%)	Group (%)	
Windbreak	31 (41.3)	44 (58.7)	23 (48.9)	24 (51.1)	0.41
Alley Cropping	34 (45.3)	41 (54.7)	25 (53.2)	22 (46.8)	0.40
Contour Farming	28 (37.3)	47 (62.7)	23 (48.9)	24 (51.1)	0.21
Live Fence	32 (42.7)	43 (57.3)	20 (43.5)	26 (56.5)	0.93
Fruit Trees	45 (60.8)	29 (39.2)	31 (66.0)	16 (34.0)	0.57
Sauce Leaf Trees	40 (54.8)	33 (45.2)	26 (55.3)	21 (44.7)	0.96
Fodder Trees	38 (50.7)	37 (49.3)	20 (42.6)	27 (57.4)	0.38
Fuelwood Trees	36 (48.0)	39 (52.0)	27 (57.4)	20 (42.6)	0.31

Bold* indicates significant differences in preferences for family or group implementation (α=0.05)

3.5.3 Verbal Explanations of Selections

A majority of study participants explained that they ranked practices highly based solely on what they provided. For example, most choose fruit trees "*to have fruit to eat and sell*" or live fence saying, "*If you plant this then animals will not enter your field.*" Explanations can be divided into two categories: 1) needs or experience, and 2) identity. Some people noted that their choices were based on their needs, current situation, and experiences. One woman chose sauce leaf trees first, explaining "*I have no husband now to buy [leaves] for me.*" Because many people had experienced problems with livestock damaging crops, many farmers selected live fence first. For example, one explained, "*I had animals enter my fields last year and they ate most of my harvest*" or "*All the time we have problems with Mbororo (Foulbé pastoralists).*" One person explained their first choice of fuelwood saying "*It's too much suffering to go and get wood. You have to cross 2 rivers. It's too hard to go with my old mother.*"

Still others preferred practices based not necessarily on experienced needs, but on a sense of identity. Many people chose fodder trees (most often Foulbé) because they have an affinity for cows, regardless of whether they possess cows currently. One man explained his fodder tree choice saying "*because cows are what I have known since birth.*" Similarly, some people chose certain practices they viewed as in line with their identity as a farmer, saying "*I am used to farming,*" "*I am a farmer*" or "*fields are what I have done/worked on*". While all of the techniques could be understood as agricultural, those chosen predominantly based on identity as a farmer were more compatible with the traditional field cropping of cassava and corn, and tended to be alley cropping, live fence, and windbreak.

Reasons for ranking practices as less preferred typically were one of the following three categories: 1) personally irrelevant; 2) useful but prioritized lower than previous practices; and 3) forgotten or misunderstood. Some found certain practices irrelevant, because they offered something they already had, or because they offered something they did not need. For example, 21 people stated that they did not choose fodder trees because they did not have any livestock and one man stated that he chose fruit trees last because he already had many mango trees. Multiple people stated that wood is widely available, so they had no need of planting fuelwood trees. Despite verbal protocol, a small percentage of

participants were unable to fully comprehend certain illustrations, and it is possible that this may have resulted in lower ranking.

Many respondents also provided verbal responses explaining their choices for group or family implementation. Eleven themes were observed related to group or family implementation choices (Table 3.8). Trust and reliability of family members to work was a common theme for many participants. One participant said, *"You taught your children yourself. They will work well for you,"* and another explained, *"Other people from outside my house may not know about farming."* Other common reasons for the choice of family implementation were personal benefit and the convenience of having products within reach of the household. As one participant explained, *"At the house, even if you need it at night, you can pick it; it's right there."*

Table 3.8 Themes based on verbal explanations for preferences for working in a group and working in a family.

Reasons for Working in a Group	Reasons for Working as a Household
Communal Benefit and Fairness	Personal Benefit
Complexity of project	Ease of project
Access to Workers	Familiarity/Reliability of family members
Maximize land used, profits	Group Complications, Regulations
Group amenities	Convenience
Knowledge Transfer	

Perceived ease of the practice influenced group or family implementation choices. Where the project seemed difficult, people chose group implementation. One participant explained their group choice saying, *"That one is difficult. You need a lot of people."* Another participant explained their choice of family implementation by saying, *"This is not hard. I can do this with my children."*

Negative and positive dynamics of working in groups factored highly in choices for group and family implementation. Participants commonly chose family implementation noting challenges to working in groups, including statements like "*I worked with a group for 3 years and it never worked out. I never harvested much from it and people would not come to work,*" and *"In a group, if I don't go, they'll say I didn't show up and I'll get in trouble."* On the other hand, others chose group

implementation explaining benefits of together. Many thought of the increase in quantity (either trees planted or land cultivated) that could be achieved by working collectively. It was common for an individual to say "*So we can plant more and sell more.*" Other benefits noted included access to labor for those who had small households or support when one is sick and cannot work. One of these benefits was the opportunity for knowledge transfer: "*People will have the knowledge you don't have.*"

Many participants explained their choice to work in a group by expressing a need for village fairness. For some, it would not be acceptable if they profited using a practice and their neighbor did not. One refugee when thinking of fruit trees stated "*You can't have it alone with people of your house. If I plant it alone and others didn't plant them, when our family eats it we'll think about others needing it; better everyone does it together.*" While many did not elaborate regarding why (e.g., whether for fear of rousing jealousies, of a practice failing to perform if it is on a small scale, or a broader sense of things not being right) many people stated something similar to "*It doesn't work if your field is good but your neighbor's is ruined.*" Even some who still preferred to carry out a practice as a household stated "*Even if I do it on my own, it will still help other people's cows.*" Here the participant emphasizes helping other people rather than personal profit, although both may hold true.

Some participants made selections based on technical requirements. When considering contour farming, one participant explained, "*We must do it as a group. I do my own area, and others do their place, each does the same and then the water will be stopped everywhere. If it's only one person the water will still ruin your field.*" Another echoed this idea, saying "*One person cannot create a windbreak alone. There will be too many holes and the wind will pass through. You have to do a big one with a lot of people.*" Referring to a fruit tree project, another said that it would require a large fence to protect the trees and would therefore require group work. One male refugee said "*If you're in a group and you don't get along, you're forced to move fields; it can't be long-term,*" noting not only challenges with groups but the threat it poses to an agroforestry project.

3.6 Discussion

CAR refugees began settling in and around the Djohong District in the Adamaoua Region of Cameroon more than 10 years ago and many have settled in host communities, taken up agriculture, and intend to stay permanently. Based on the data collected and interviews conducted we can make several statements about agroforestry preferences and potential in this area. Results of this research demonstrate that despite a level of integration, there are notable differences in agroforestry preferences between CAR refugees and Cameroonians. Results also suggest that differences between men and women and Foulbé and non-Foulbé ethnicities are few. Differences in preference for individual practices across groups of people point both to varying perceptions of practices and different social group needs. While many agroforestry adoption studies explore preferences for practices, few have investigated desired modes of implementation. Combining practice and implementation preferences better defines how community members view practices and the ways in which agroforestry can be used to build social capacity and protect impacted resources.

Jacobsen and Landau (2003) point out that many refugee studies lack methodological rigor, particularly in sampling procedures. Also Arnold (1983) stated that in agroforestry preference studies, information must be gathered from all community members rather than heads of households or village leaders to avoid neglecting perspectives of the landless, pastoralists, and women. We carried out systematic sampling, resulting in even distribution across *status* and *gender*. Ethnicity was not equally represented, however it did reflect general trends in the sampled villages, as the vast majority of CAR refugees are Foulbé. Age was normally distributed and included both younger and older community members. It was somewhat surprising that there were not major differences between refugees and Cameroonians in household size or number of children, as many refugees explained they had lost family due to unrest. Because of careful planning and execution across these variables, the systematic sample increased generalizability, and is more representative of the needs of the entire community.

Fruit trees, sauce leaf trees and alley cropping were most commonly ranked at the top and appear to be the most universally appropriate. Few people in either group felt that they would not benefit from

48

potential increase in food or fertile soil. Practices that were ranked lower, such as live fence, windbreak and contour farming, addressed specific problems, and were not as universally applicable. For example, not everyone has experienced wind or animal damage in their fields and not all fields are on a hillside. Similarly, fodder trees was a practice that many believed to be irrelevant. While some participants did not own animals but were still interested in planting fodder trees to sell to those who did, most people felt that fodder trees were only for cattle owners.

CAR refugees generally ranked fruit trees and fuelwood higher than Cameroonians, and windbreak and fodder trees lower. That 76% of refugees ranked fruit trees in the top 3 compared to 49% of Cameroonians indicates that refugees are likely more focused on food production and may see fruit as a means to increased security. It may also suggest that Cameroonians possess or have access to a greater number of fruit producing species. A parallel and supportive result is that refugees ranked fuelwood trees more highly than Cameroonians. Selection of fruit trees or sauce leaf trees was often accompanied by verbal emphasis on household food production as a top priority. These results are in line with Agea et al.'s (2007) study of indigenous fruit tree preference among farmers in Uganda, which found that the most common reason for selecting fruit trees was not for income through sale but for household food provision. Some Cameroonians similarly explained their choice for food producing trees, noting a preference first for what can be eaten.

Cameroonians ranked windbreak higher than refugees. Cameroonians may have had more personal experience with wind damage, but it is also possible that they are better established and have other basic needs met which allows for focus on goals such as field and home protection. Windbreaks may also signal a sense of greater permanence when considered in terms of other practices, such as fruit or sauce leaf trees, as it typically takes longer for them to render benefits. While most refugees indicated plans to stay where they are for the indefinite future, many expressed general feelings of uncertainty about the future. As such, refugees may be more hesitant to invest in long-term projects at this time for fear of upheaval.

Many participants explained they viewed windbreaks as a complex and large technical undertaking. This complexity, paired with a lack of tangible products, is possible reason refugees may not value or feel as able to participate in the practice when compared to Cameroonians. Given that 68% of the sample refugees were Foulbé, it is not surprising there is a strong correlation between status and ethnicity in terms of less preference for windbreaks. Foulbé ranked windbreak lower than other ethnicities and fodder trees higher, as many still practice pastoralism or hope to in the future.

Preferences for fuelwood stands out as a noticeable difference between Cameroonians and refugees. Overall, both ranked fuelwood low generally noting that wood is widely available. However, refugees ranked fuelwood more highly than Cameroonians, suggesting refugees may face prohibitive factors in terms of wood collection or availability. Though not explicitly stated by participants, it is possible that refugees do not have the same access to wood as Cameroonians or that wood gathering is more difficult for refugees, for reasons such as poor health due to lower nutrition (Pieterse and Ismail 2005; Roberts et al. 2009). Many refugees commented in other contexts that they are weak and do not have strength, which makes fuelwood collection more difficult. Women also ranked fuelwood higher than men, which reflects findings in previous studies. This is not surprising as it is often the responsibility of women to gather wood (Ahmed 1999).

The majority of refugees are Foulbé, who were pastoralists. When asked about previous occupation, almost two-thirds listed livestock compared to just over 9% at the time of the study. This signals a large shift in livelihoods taking place among refugees. While many are learning agriculture as a means for survival, self-identity as pastoralists appears to remain significant. Many people noted that they chose fodder trees (most often Foulbé) because of an affinity for cattle, regardless of whether they currently possessed cattle. Many explained that cows are what they know, or that they "choose for cows" (fodder trees) because they are Foulbé. In this context it is striking that as a whole, refugees ranked fodder trees lower than Cameroonians, despite strong connection to cattle as a sense of personal identity. Many ranked fodder trees less highly than Cameroonians noting that this practice no longer seemed relevant to them, having lost their livestock.

50

While multiple differences in ranking exist between refugees and Cameroonians, only 2 differences were observed based on ethnicity (fodder trees and windbreak) and 1 on gender (fuelwood trees). Bonnard and Scherr (1994) found that tree species and product marketing choice in Kenya were not clearly separated by gender. They called for stratification according to other variables including access to resources and marital status. Social group membership, such as national status, is another frame for stratifying. It was surprising, however, that preferences did not differ more by ethnicity, given that the majority of refugees are from one ethnic group and many traditions are shared along ethnic lines. This is especially true because ethnicity can be more salient than nationality, particularly among semi-nomadic ethnic groups present on both sides of a border (Mouiche 2011). While there were two differences based on ethnicity (windbreak and fodder trees), the results demonstrate that agroforestry preferences often were more related to status as a refugee or Cameroonian than ethnicity. These findings support Jacobsen's (1997) argument that in refugee contexts ethnic ties can be helpful but are not always indispensable because other factors are influential to social relations.

Refugees, Foulbé, and women ranked product-based practices higher than service-based practices, which is also reflected in the overall ranking result. It is interesting to note in relation to this result that refugees, women, and pastoralists have traditionally been considered less privileged, having access to fewer resources (e.g., Arnold 1983; Krings 1995; Pieterse and Ismail 2003; Oberhauser and Pratt 2004; Dutta 2011; Mouiche 2011; Kiptot and Franzel 2012). Foulbé preference for product-based practices may be because of the presence of fodder trees in the product categorization. The other three product-based practices, however, are directly or indirectly related to food. That there is a trend among each of these groups toward product-based practices further supports links between marginal living, privilege, and food security and shows that women, pastoralists, and refugees tend to be more marginalized and focused on meeting basic needs.

The classification of product- and service-based practices was also significantly different across implementation preferences. In general, study participants preferred to implement product-based agroforestry as a family and service-based practices in groups. Rationale offered when making these

selections suggest that when benefits are more tangible, as in fruit or fuel wood, farmers desire to keep this product within the confines of the family and appreciate convenient access to goods. At the same time, many participants preferred to implement service-based agroforestry practices as a group, with stated reasons supporting access to more labor, knowledge transfer, and other support from NGOs. Where practices might be new, foreign, or complicated, participants were more likely to prefer working in groups for support and shared risk. Group work might also be chosen for practices with perceived lower economic return. Farmers may be more comfortable to share that practice with others because there is less of an economic sacrifice.

These results align Zheng et al.'s (2012) study of participation in farming cooperatives in China, in which farmers tended to be more likely to participate in cooperatives if perceived risk was high. Preferences for group implementation of service–based practices point to varying perceptions of complexity across agroforestry systems. Planting and managing an orchard may be as complex as a windbreak, but backyard or garden fruit trees are a common part of daily life in the study area. Conversely, windbreaks, alley cropping, and contour farming systems are not, may be viewed as more complex, and therefore more frequently chosen for group implementation.

For those who chose group implementation, there was a common theme of desire for communal benefit. In Birchall and Simmon's (2004) study of participation in consumer cooperatives, the authors were surprised to find that 60% of the participants reported partaking in a cooperative to increase communal benefit, while only 1% reported participating for individual benefit. Explanations by many of the participants in this study echo these findings, wherein the desire to work in groups often related to group rather than individual benefit.

While a greater percentage of women preferred group implementation when compared to men, it was not as prominent as expected. There are many reasons women often prefer working in groups, including cooperation, socializing, and the idea of communal benefit previously mentioned. For instance, Ferguson and Kepe (2011) found that many women in Uganda chose working in groups because it gave them more control over household agricultural production. In cooperatives they were able to have primary

responsibility and make decisions, while working at the household level meant agricultural products were under husband control. Considering this, it is surprising that there was not greater separation between preferences for group and family work across gender.

What is striking, however, is that there were significantly more refugees preferring to implement more practices in a group, while Cameroonians mostly preferred family implementation. This suggests contexts of transition and instability for refugees who may seek group work for agroforestry implementation because of the accompanying support. Some may not have as much access to personal land and others have fewer household members to support family work.

Some CAR refugees would have preferred to carry out the practices as a family, but noted that this was not an option due to household dynamics. Other reasons for choosing group work included support for when one is sick and cannot work. Because of instability and limited resources, refugees also may be less comfortable with risk. Some may perceive outside aid agencies as preferential to group work, as aid and extension agencies commonly interact with farming groups over individuals (Romanoff 1993). Communal benefit may also be more important for refugees who have experienced greater insecurity and hardship and more strongly feel a need for solidarity.

On the whole, explanations for selecting family implementation point to negative group experiences. Some people noted challenges with group work in the past and others anticipated hurdles in the future. This may necessitate adaptation to common approaches for organizing sustainable land use projects in refugee settings. If either refugees or Cameroonians have had difficult experiences with groups, they may not be readily willing to work in groups, including those associated with aid or developmental agencies. Agroforestry projects that require group participation may be less successful in such scenarios. Another consequence could be that only a percentage of those that are interested will actually implement agroforestry projects.

With this in mind, efforts to support agroforestry implementation should take on various forms between and among community members. There is potential to use groups for general support and knowledge transfer, while allowing others to have access to similar resources at the household level. It

may be necessary to extend resources to community members who are marginally established with minimal access to resources through the medium of a group. Working with refugees on certain agroforestry practices may require group mechanisms to provide social support. In some villages, refugees expressed a desire to work with Cameroonians, but that the Cameroonians were not interested; yet many Cameroonians also expressed preference for group implementation. This is an opportunity for the creation of a solid and supportive group arrangements, consisting of members of both groups, with greater access to resources, especially where agroforestry practice preferences align.

The potential knowledge transfer was a common explanation for choosing group implementation. Some people wanted to work in groups so that members could share knowledge with each other, while others wanted to work in groups seeing that education and resources would be shared from NGOs partnering with farmer groups. Ferguson and Kepe (2011) note that social benefits of working in cooperatives was knowledge transfer, as members learned by doing and could share information and skills and participate in cooperative problem solving. Thus agroforestry projects in refugee contexts have the potential to extend conservation farming practices to many people and such projects provide a solid environment for continued knowledge sharing and social support.

Conversely, extending agroforestry resources and projects to more well-established community members with greater access to resources could come in the form of household extension. While many aid organizations encourage group work as a way to build solidarity, reach multiple households, and have broader contact with community members (Romanoff 1993), there are also benefits to project implementation at the household level. Projects carried out at the household level have the potential to be long-lasting, as children growing up in such households may be more likely to replicate what they have become familiar with, participate in, and see being practiced by family members. As organizations look to develop agroforestry projects, they must find ways to work with both farmer groups as well as individual households.

Perceived difficulties associated with implementing practices and group preference illustrates a need for certain types of technical support and education. Many participants stated that they did not have

the knowledge to carry out certain practices but were still interested in them. They viewed group

implementation as a way to learn more among each other as well as partner with NGOs. In general,

interest in agroforestry exists but both Cameroonians and CAR refugees expressed a lack of knowledge

about certain practices and a need for supporting resources. Trends for group implementation of service-

based practices combined with qualitative data may suggest that in extension of service-based practices

requires more support and resources than product-based practices.

In general, findings suggest that agroforestry preferences are related to history and social

hierarchy when distinct groups live together in communities. It is not altogether surprising that

agroforestry in the context of refugee populations or individuals in marginal situations will likely be most

appropriate first in terms of meeting primary needs (e.g., food). As individuals become more secure and

basic needs are met, interest in other agroforestry practices with less tangible or longer-term benefits

could increase.

Cameroonian and CAR refugee preferences could be viewed as descriptive of continued disparity

in situation and need. However, differences do not necessarily require specifically tailored programs. It is

important to be aware of group similarities alongside differences. Many individuals in each group ranked

practices and implementation similarly. For example, on average both refugees and Cameroonians

ranked fruit trees, sauce leaf trees, and alley cropping as 1, 2, and 3 respectively. Contour farming was

also ranked lowest by both and Cameroonians and refugees chose family implementation for fruit trees

and group implementation for contour farming.

Such similarities signal cohesion and demonstrate possibilities for engendering mutual gain based

on parallel needs and interests. Commonality is important for understanding evolution of community in

refugee contexts, and certain agroforestry projects can be designed to meet critical objectives for both

groups (Namaalwa 2011). In addition, preference variation points to a level of integration and successful

establishment of lives in adapting communities. As time progresses, it could be that differences between

CAR refugees and Cameroonians become less distinct. Where they do remain, constructive integration

designed to build capacity will be critical. It is only flexible and locally specific programming, which is

aware of the needs of all community members, and may truly provide effective solutions for such communities.

3.7 Conclusions

An influx of refugees can profoundly impact host communities and their natural resources. There are an estimated 42 million people currently displaced worldwide, and understanding impacts of dislocation, mitigating conflict, and offering sustainable practices is imperative. Agroforestry provides a tool that may be useful for responding to both environmental challenges and social needs of communities in refugee settings. We carried out our research to understand preferences and potential for agroforestry projects in one such setting in order to inform and improve policy and programming decisions that may improve the lives of refugee and host community members and their natural resources.

Sixty-three CAR refugees and 59 Cameroonians in six villages in the Adamaoua Region of Cameroon were surveyed in this study. The primary objective of the project was to study and compare agroforestry preferences among these participants. In some respects, refugees and Cameroonians were similar, in other ways different. A general result of interest was that differences were more commonly observed between refugees and Cameroonians when compared to gender or ethnicity. Refugees tended to prefer working arrangements in groups and Cameroonians at the family level for implementation of agroforestry projects. In general, individuals preferred to keep agroforestry practices that primarily provide products at the family level, and rely on group arrangements for agroforestry projects designated as service-based. This was true for both Cameroonians and refugees.

While differences in preferences exist between CAR refugees and Cameroonians, there are also many similarities which cut across status, gender, and ethnicity. These similarities demonstrate commonality and suggest that aid agencies working in such contexts can serve host communities and refugees jointly, while being aware of potential differences in needs and preferences based on availability of resources and support. Ultimately, local village contexts and personal challenges may be more relevant toward determining agroforestry preferences than demographic characteristics of individuals, though results suggest that key variations do exist. This study shows that the context of refugee hosting

communities offers a unique and important environment for agroforestry extension. Agroforestry programs that are able to navigate and respond to both generalities and nuances will be better positioned to help communities improve local environments as well as strengthen group relations in the midst of change.

CHAPTER 4. IDENTITY AND AGRICULTURAL COLLABORATION

4.1 Introduction

Identity is a key driver of social integration and sense of community where diverse groups of people live (Hewstone and Greenland 2000, Hornsey and Hogg 2000a, Hornsey and Hogg 2000b). An individual's identity can be based on many attributes—nationality, ethnicity, religion, gender, age group membership—and multiple identities may define a single person (Lee 2005). Certain group identities may be more salient for some people than others and an individual's identity is not constant but may change and be influenced by various factors at different times.

Identity has been studied for some time as a way of making sense of intergroup relations. *Social identity theory,* developed to explain intergroup behavior, describes that social identity is formed by interaction and comparison with other "outgroups," or groups of which one is not a member (Tajfel and Turner 1979). Hewstone and Greenland (2000) argue that identity is critical. Diverse identity-based mitigation strategies should be used when addressing difficult relations between diverse groups of people. One strategy involves increasing intergroup contact and collaboration in a supportive atmosphere, while another entails restructuring how people are categorized.

Simultaneous identities and the relevance of civic and cultural identities are particularly important considerations in areas where refugees have settled in host communities (Berry 2012). By virtue of settlement, refugees become more or less a part of the larger or superordinate community, but this does not mean they must abandon subgroup traditions if distinct from the host community. Strength of association with various identities on the part of both refugees and host community members will affect interaction and collaboration.

Response to refugees in host regions may vary and rely on many factors. Refugees may be viewed as outsiders, bringing with them instability and danger, or as a threat to community natural resources and traditional lifestyles (Lassailley-Jacob 1993; Jacobsen 1997; Whitaker 1999; Martin 2005; Horst 2006; Adjaloo et al. 2008). On the other hand, refugees may be seen as a welcome human resource

that can help take part in agricultural efforts, increase markets, and bring valued skill sets (Whitaker 1999).

Hewstone and Greenland (2000) note that because individuals may be cross-categorized (i.e., part of different groups simultaneously) they may be an "outgroup member" under one categorization such as status as refugee, but an "ingroup member" for another, such as religion or ethnicity. When multiple converging social categorizations as outgroup or ingroup exist (i.e., when someone is an outgroup member for multiple categories), conflict between groups may be more likely.

In some instances refugees and local villagers share similar ethnic backgrounds and may have an easier time integrating because of similar cultural identities. However, shared kinship may not always positively influence relations. Jacobson (1997) writes that "Much is made in the research literature of the importance of refugee's ethnic or kinship ties with local people as a factor in their ability to integrate themselves into the community. Empirical research suggests, however, that while these kinds of ties help in securing land, they are not necessarily indispensable. (27)" Thus other types of identities beyond ethnicity may influence integration where ethnic ties are not indispensable.

Literature on refugees, identity, and integration is sizable, but most focuses on refugee resettlement in Western countries. For example, Berry (2012) describes that refugees in Western Europe feel a need to maintain their distinct identities through the integration process, and points out that it is more difficult to maintain unique group identity where refugees face intolerance or discrimination. This argument pertains to conditions of extreme distinctiveness. Little is written, however, about identity and integration in the context of neighboring countries where similar ethnic groups live in host communities. Some may assume that there would be few differences in identity where ethnic ties exist and geographical distance between refugee provenance and settlement regions are small there would be few differences in identity. Yet perceptions of "outsiders" vis-à-vis "locals" may manifest in the evolution of social relations as communities adjust in response to refugee resettlement.

The label "refugee" carries certain perceptions, implying aid, loss of livelihood, poverty, violence, flight, and new beginnings (Lassailley-Jacob 1993; Hill 2006; Horst 2006). These elements can

separate refugees from host communities, even if they are of the same ethnic group, clan, or family. Nevertheless, refugees often best integrate into communities that are similar in ecological and cultural makeup to those they left (Jacobsen 1997). Thus the role of identity among refugees and host communities in regions of first asylum and local integration constitutes an important facet of integration.

Environmental scarcity, particularly in the context of refugee influx, often can lead to conflict (Jacobsen 1997; Martin 2005). However, scarcity also has potential to foster collaboration. Whether environmental impact leads to conflict or cooperation depends on several factors, including culture, regional and cultural history, and population demographics (Martin 2005). Similarities and differences across groups of people are fundamental aspects of integrated agricultural projects designed to benefit communities and respond to needs of refugee and host community populations. Community-directed contact and sharing are thought to break down bias and increase inclusion, and may address many areas of life in refugee-hosting communities.

Natural resource management and agriculture are areas where contact and sharing can take place and benefit refugee-hosting communities. Identity and intergroup relations are likely especially important factors in natural resource management and agriculture in refugee contexts, because refugees and host community members must learn to work together to manage land resources. Community farming projects which include refugees and host community members may create bonds and facilitate evolution of a sense of a greater, shared identity. Because members of both groups may have varied backgrounds and agricultural experience, there is an opportunity for transfer of knowledge and an environment of learning, while developing best practices for community-based agricultural management. In general, farmer preferences for social implementation of agricultural projects are rarely explored in research; however social relations and arrangements of people working in agriculture are fundamental to understanding integration and harmonious intergroup relations in regions where refugees have recently settled.

Working in farmer collectives is a frequent practice in many villages and farmer groups offer benefits of work support, pooling of resources, and division of labor. Many aid agencies follow this model when working in agricultural development projects, encouraging formation of groups or collectives

with which they will work (Davis et al. 2004). In refugee zones, there is the possibility for farmer

collectives to be comprised of refugees, host community members, or both. Agriculture is a social

backdrop wherein the interplay between identity ranging from isolation, to assimilation, to

multiculturalism, to integration circumscribes critical outcomes in terms of group cooperation and overall

community well-being. The question is, how might arrangements such as these and others form and

function among diverse refugees and host community members with multiple threads of identity pertain

to joint agriculture and potential community benefit?

The nature of individual views related to distinctiveness and shared purpose could have profound

impacts on how a refugee or host-community member approaches compatibility between various

community initiatives and personal objectives in joint agricultural projects. Because individuals may

have multiple identities to which they relate, measuring different types of identity is one way of shedding

light on interpersonal dynamics within a community and assessing the possibilities and constraints related

to cooperation.   Subgroup and superordinate identities are useful constructs for farming different levels

of identity and potentially understanding social dynamics within refugee-hosting communities as they

relate to collaboration and integration in agricultural and natural resource contexts.

4.2 Theory

Hornsey and Hogg (2000a) present a theory of subgroup relations, laying out historical ideas of

cultural identity and depicting a spectrum of relationship between subgroup and superordinate identities

(Figure 4.1) . On one end of the spectrum, groups of people within a community have strong subgroup

identities and there is no existing larger superordinate community identity. This is often referred to as

"Multiculturalism." On the other end, subgroup identities have completely broken down, and people only

see themselves in terms of a superordinate community identity. "Melting pot assimilation" is this end of

the spectrum. In the instance of assimilation, all subgroup identity melts away as individuals take on the

identity of the larger superordinate group. In multiculturalism, subgroups are retained and emphasized

while superordinate identity is rejected or minimized.

Both *multiculturalism* and *melting pot assimilation* have drawn criticism as avenues for integration. According to Sears et al. (1999) multiculturalism, celebrates uniqueness, yet can keep people from relating to other members of their community who may be from different groups, and thus ultimately promotes division. Assimilation, on the other hand, denies the worth of unique or smaller group identities and has the potential to lead to loss and resentment (Hewstone and Greenland 2000; Hornsey and Hogg 2000a). Thus, both ends of the linear identity spectrum appear to pose challenges for social integration and sense of community in regions where diverse groups of people reside.

As an alternative, Hornsey and Hogg (2000a) present two models of intergroup relations, located in the middle of the linear spectrum (Figure 4.1). The *common ingroup identity model* explains that beneficial contact between two separate groups changes the groups (us and them) to one inclusive superordinate group (we) (Gaertner et al. 1993; Gaertner et al. 1996; Gaertner et al. 1999). In this model, the focus is not on eliminating subgroup boundaries but on creating a more salient and inclusive superordinate identity, which may surpass subgroup identities. In the *mutual intergroup differentiation model* a greater superordinate identity encompasses all individuals, but subgroup identities are sought out and recognized and specific abilities and skills respected. This can reduce identity or distinctiveness threat and foster harmonious relations. In both cases, subgroup identities are not abandoned and accord achieved by maintaining, not weakening them.
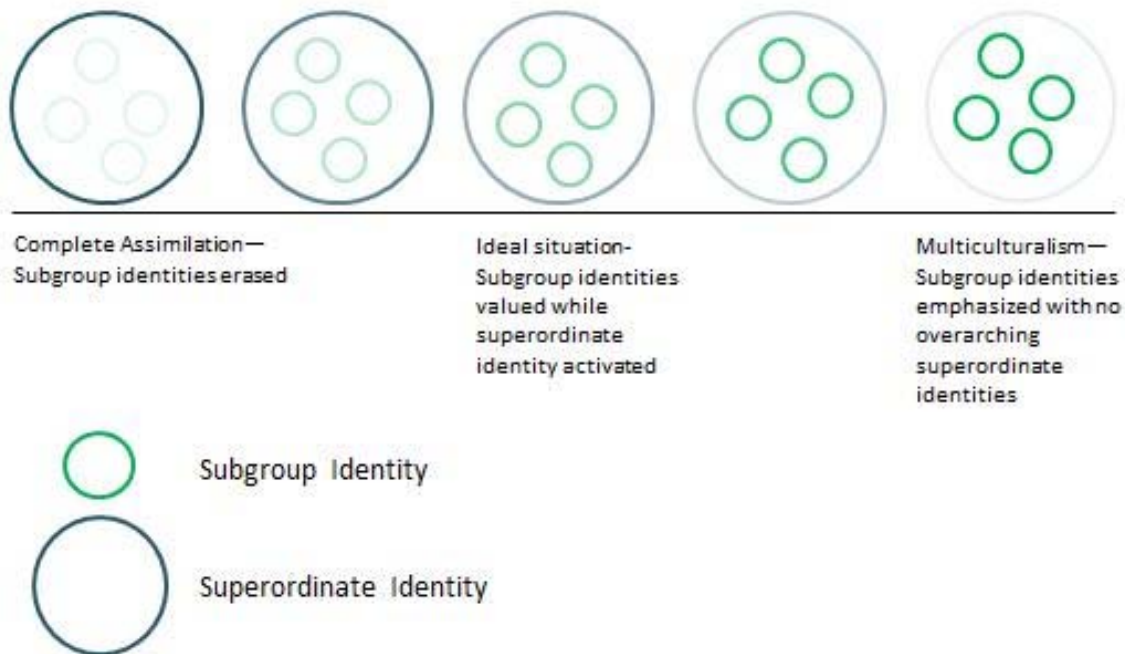
Figure 4.1 Visual representation of a linear spectrum of identity based on Hornsey and Hogg's (2000a) theoretical description of subgroup relations moving from Assimilation to Multiculturalism.

Distinctions of subgroup and superordinate spectrums are demonstrated in an applied study published by Bruter (2003). Two identity types were outlined using a political framework: 1) a civic identity, which relates to a sense of belonging or relating to a nation (i.e., superordinate) and 2) a cultural identity, based on distinct culture, such as ethnicity, language or religion (i.e., subgroup). Six variables were operationalized and used to measure European civic identity, 4 variables to measure European cultural identity, and 2 open questions to measure general European identity. The objective was to create a model that would account for both aspects of identity.

Results show that symbols might affect cultural identity whereas reasoning is more likely to affect civic identity. According to Bruter (2005) this suggests that not only is the retention of multiple identities possible, but the interplay between them can be mutually reinforcing (e.g., the more Dutch one feels, the more European they feel). Therefore the tradeoffs between superordinate and subgroup identities are not always linear and situations exist where people may strongly or weakly identify with

63

both. With respect to integration policy, findings suggest that programs should aim to promote new civic

identity, but not necessarily new cultural identities. However, understanding the simultaneous nature of

and effectively balancing both could pay dividends (Hornsey and Hogg 2000a).

Hornsey and Hogg's (2000a) example is useful, but as Bruter's (2003) study demonstrates, it is

possible for an individual to have both strong subgroup identity and strong superordinate identities, which

is not possible to conceptualize according to their theoretical spectrum. All potential relationships

between subgroup and superordinate identity can be represented on an x and y axis (Figure 4.2). Location

A represents a position of weak subgroup and superordinate identities. This individual does not identify

with either sub or superordinate groups. In other words they are *isolated* and may have a self-perception

of being alone, only themselves. *B* represents a position of strong subgroup and weak superordinate

identity. This individual values their subgroup identity but does not feel a connection to a larger

superordinate identity, and this area represents the region of *multiculturalism*. *C* represents a position of

strong superordinate and weak subgroup identity. This individual embraces a larger superordinate identity

and all but abandons their subgroup identity (i.e., *assimilation*). *D* represents a position in which both

subgroup and superordinate identities are strong. Building on Hornsey and Hogg (2000a), this individual

identifies with the larger community, while maintaining connection to their unique characteristics. They

are *constructively integrated*, the extent to which is bounded theoretically by the circular region in the

upper right.
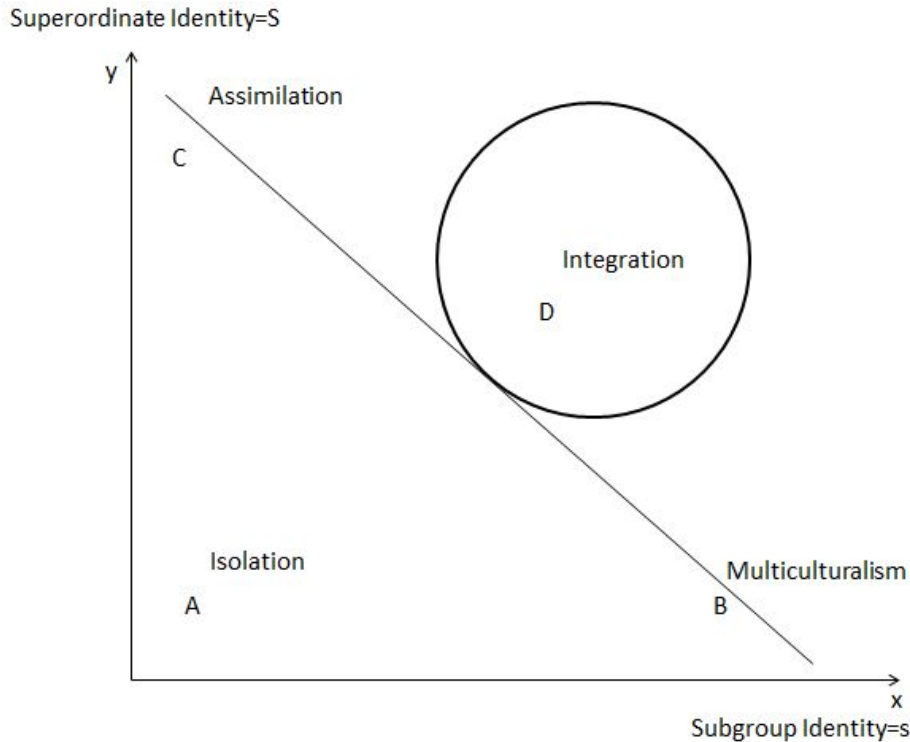
Figure 4.2 Reconfiguration of a linear spectrum of identity from Assimilation (upper left position C) to Multiculturalism (lower right position B) into 2 dimensions.

Note: The x axis represents levels of subgroup identity and superordinate identity. Use of two axes allows for simultaneous and variable levels of subgroup and superordinate identities represented by the additional position A depicting Isolated and position B depicting Constructively Integrated.

4.3 Study Context, Objectives, and Chapter Outline

An estimated 100,000 refugees from Central African Republic (CAR) have crossed into Cameroon seeking refuge from violence over the past 15 years. They have settled in over 300 villages in the Adamaoua Region and are permanently integrating into communities (UNHCR 2011). Local integration means that communities must adapt to the change in members of their villages and work together to exercise control over community evolution. In most areas, refugees have been allocated land to farm and homes in which to live by village chiefs. Some communities are accepting and supportive of refugees and others less welcoming. To explore social relations between the two groups, and potential for cooperation, we developed and carried out research with a sample of host national Cameroonians and CAR refugees which focused on agricultural cooperation in the midst of social change.

Our research question was "What are levels of identity and integration among refugees and host community members in this setting, and how might this affect potential for integrated and collaborative agricultural projects?". One of the study's objectives was to measure and compare the relationship between subgroup and superordinate identity among groups of refugee and host-community members. A second objective was to measure preferences for social arrangements of people in agricultural project settings. Evaluating the dynamics of identity between refugees and Cameroonians in addition to social aspects of project implementation addresses group dynamics as they relate to agricultural projects, which is particularly relevant the context of refugee settlement in host communities. Two data collection procedures were used which differed in terms of emphasis on theoretical verbal and actual demonstrated visual signals of identity and integration. We hypothesized that we would find differences in identity and social arrangements in fieldwork between refugees and Cameroonians, and potentially across *gender*. We also hypothesized that there would be a relationship between measured identity scales and social arrangement preferences for fieldwork.

To meet these objectives, we surveyed refugees and host community members across six villages in the Djohong District of the Adamaoua Region in Cameroon (Figure 4.3), using a 20 question oral survey and a participatory visual storytelling activity on the subject of social arrangements in fieldwork. Results are evaluated for the total sample and according to *status* (Refugee/Cameroonian) and *gender* (male/female). First we present identity question findings for the sample, followed by results of intergroup comparisons. Then we present findings for the participatory social group field arrangement activity, and intergroup comparisons. Finally, we look at links between identity of survey participants and their preferences for social arrangements in fieldwork.
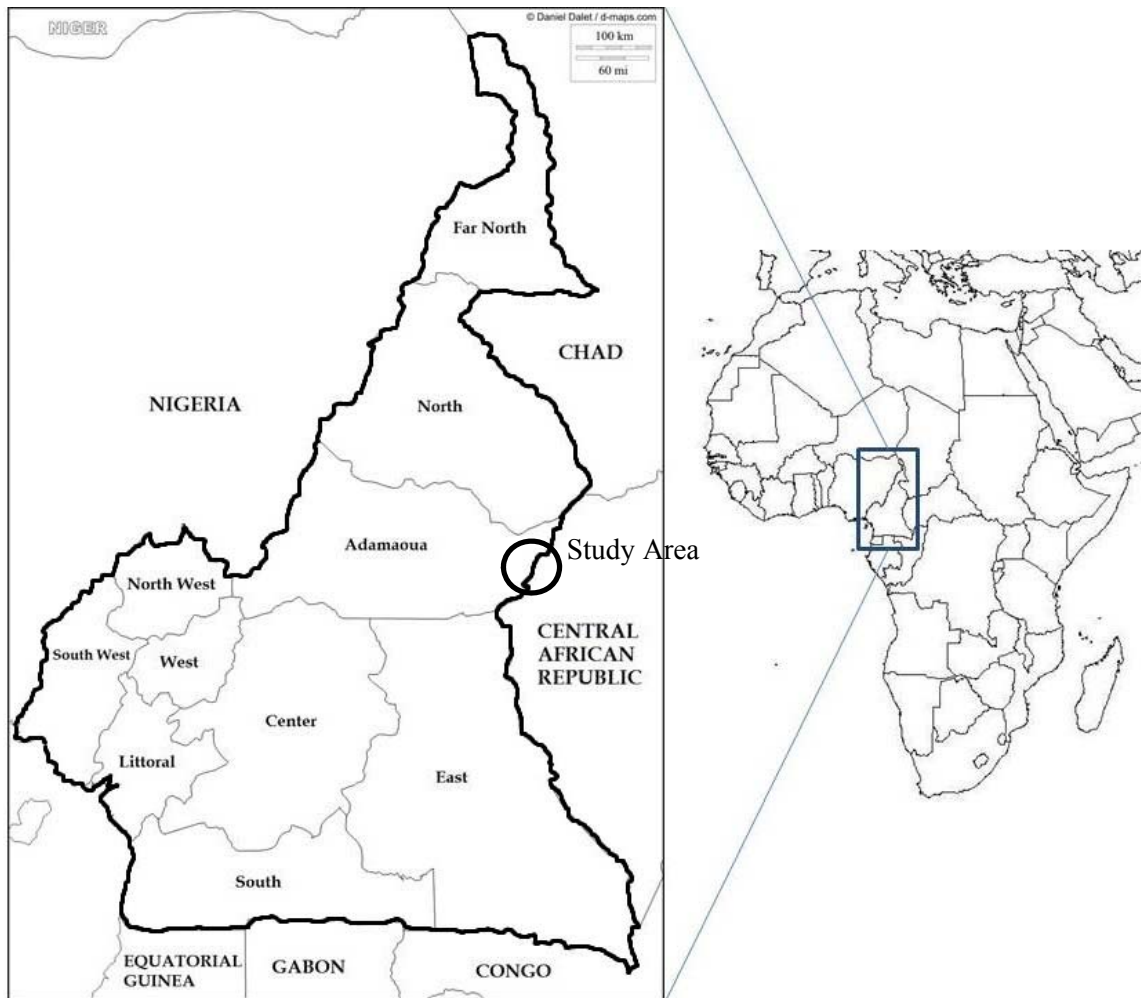
Figure 4.3 Study area within Cameroon. (map adapted from d-maps.com)

4.4 Methods

Research took place in Djohong District, in the eastern Adamaoua region of the Republic of Cameroon. Data were collected from individuals residing in six villages near the border with CAR. Villages were systematically selected based on the criteria of having: 1) populations of both Cameroonians and CAR refugees; 2) a current nutritional gardening program through the NGO International Medical Corps (IMC), and 3) a radius of 50 km or less from the village of Djohong.

Individual interviews were carried out using participatory methods and visual activities. Village leaders (chiefs and IMC community liaisons) were contacted in advance to explain the purpose of the research, and leaders were asked to gather community members, varied in age and ethnicity, to form introductory discussion groups using a 2 by 2 matrix based on gender and refugee/Cameroonian status.

67

Introductory groups served 4 purposes: 1) allow for introductions between researchers and community members 2) provide basic information on village dynamics, challenges, and social relations, 3) serve as a venue for agroforestry teaching and prep for individual interview activities, and 4) create a sample frame.

In contexts of rural villages and refugee populations it is often impossible to obtain a list of all inhabitants to carry out random sampling (Jacobsen and Landau 2003). In this research the introductory discussion groups served to create a population frame from which participants could be randomly sampled for individual interviews. Each discussion group participant was assigned a number and from this frame, potential participants were drawn randomly. If a sampled participant was unavailable or declined to participate, the next number on the list was selected. This continued until reaching the desired number of participants from each group (5-6 based on village size) (after Kiptot et al. 2006).

During individual interviews we recorded demographic information, administered a 20 item questionnaire on identity, and conducted a visual storytelling activity designed to gather data on preferences for social arrangements in fieldwork. Demographic information included status as refugee or Cameroonian, age, ethnicity[3], education, years lived in the village, number of children, number of people in the household, whether they had been a part of the IMC garden program, types of farming they participate in, and current and previous occupations.

All participants spoke French and/or Fulfulde. The researcher is fluent in French and proficient in Fulfulde. One Cameroonian translator from a neighboring region with fluency in French and Fulfulde accompanied the researcher during all activities. Interviews were conducted in French and translated into Fulfulde. Open-ended comments and rationale for responses were also recorded when offered.

A 20-item questionnaire was developed along the themes of subgroup and superordinate identity as they relate to social relations between refugees and Cameroonians (Appendix G). We defined superordinate identity on the village level, meaning an individual's sense of identification with and belonging to the village community in which they are living, and we framed subgroup in terms of

---

[3] There are two main ethnic groups in the region, Foulbé and Gbaya. Two lesser ethnic groups existed in smaller number which are linguistically and culturally more closely related to Gbaya.

refugees and Cameroonians. Two sets of 10 questions were developed to measure each of the two identity types. Two questions were asked pertaining to themes of: 1) farming; 2) marriage; 3) education; 4) living quarters; and 5) leadership. While not exhaustive, these five themes were selected to represent aspects of community in which CAR refugees and Cameroonians have the opportunity of interacting together.

The first set of ten questions measured superordinate identity. They covered acceptability of social integration, asking whether CAR refugees and Cameroonians should be separate or together in education, farming, marriage, neighborhoods, and leadership. Questions were binary, with response options "together" coded 1, or "separate" coded 0. A score of 10 would be assigned to those that responded to every question with "together," thus indicating the highest superordinate identity score. If one responded to each question that CAR refugees and Cameroonians should remain separate, the total superordinate identity score would be a 0, or the lowest. All scores ranged from 0 to 10.

The second set of questions related to subgroup identity and the theme of uniqueness in tradition and needs. Questions asked if traditions and needs in agriculture, marriage, leadership, living quarters, and farming are different or similar between refugees and Cameroonians. Binary response possibilities were "similar" coded 0 or "different" coded 1. Scores ranged from 0 to10, with 10 being the highest possible subgroup identity score. Individuals were plotted on a grid created using the combination of superordinate and subgroup identity scores. The y axis represents superordinate identity and the x axis subgroup identity, with a scale of 0 to10 on both axes. Grid plots were evaluated and used to equitably separate individuals into spatial groups for statistical testing. Superordinate and subgroup identity scores were analyzed for the entire sample and across variables of *status* and *gender* using Mann Whitney U and Kruskal-Wallace nonparametric tests. Mann Whitney U test is a t-test alternative for data which is not evenly distributed, and Kruskal-Wallace is an ANOVA test alternative for unevenly distributed data.

Responses to each set of paired questions were added together across the 5 themes, resulting in 10 summated variables: *Subgroup Marriage, Subgroup Education, Subgroup Agriculture, Subgroup Leadership, Subgroup Living Quarters, Superordinate Marriage, Superordinate Education,*

Superordinate Agriculture, Superordinate Leadership, and *Superordinate Living Quarters*. For

superordinate questions, participants answering "separate" for both questions scored a 0. Those

answering "separate" for one and "together" for the other scored a 1, and those answering "together" for

both who scored a 2. For subgroup questions those answering "similar" for both of the questions received

a 0. Those answering "similar" for one and "different" for the other scored a 1, and those answering

"different" for both who received a 2. Responses for each variable were analyzed for the sample, and

across variables of *status* and *gender*.

Following the questionnaire, an illustrated visual storytelling activity was administered. Each

participant was provided large format backdrop illustrations of agricultural plots (Figure 4.7). Field

backgrounds were used to assess the level that individuals view various community members

participating in an agricultural initiative. Their arrangement shows their comfort with working with and

relating to other community members. Three field scenes were used to repetitively measure social

working arrangements in different agricultural scenarios. They include: 1) a community garden; 2)

personal fields; and 3) community fields.

Community gardens are often cultivated through the dry season, located close to water, and hand

watered. Plots tend to be smaller than fields, and vegetable crops such as tomatoes, greens, beans, and

bananas are planted there. In the illustration, a live fence is planted around the garden area, and small

plots are located inside it. The second illustration of personal fields represents 4 fields under single

ownership, which may be owned or rented season to season. Field plots are large and cultivated during

the rainy season. The third illustration used the second as a template, but agroforestry techniques were

added. A windbreak is located on one side, a live fence surrounds all four fields and alley cropping trees

are planted in intervals along the borders of the four fields. This set of fields depicts a community field,

owned communally by the village.

Participants were also given a set of figurines representing Cameroonian women, Cameroonian

men, CAR refugee women and CAR refugee men (5 or 6 in equal number of each) (Figure 4.4). Status as

Cameroonian or refugee was depicted by a thin line of yellow or blue paint respectively on the outside of

the figure. Men and women were differentiated by dress and hairstyle. Figures were laid out in groups, with all the Cameroonian men in one group, Cameroonian women next to them, CAR refugee women, and CAR refugee men next to them at the base of the backdrop illustrations.

Each set of figures had members of each ethnicity (depicted by dress), so that every participant would be able to self-identify with the clothing style of their respective group. Figures were illustrated so that the farm activities figures were doing (e.g., hoeing, standing, carrying water, planting) were present on both sides to control for participants choosing a figure based on the job they were doing[4]. This gave participants the ability to choose the type of person they wanted (based on *status* and *gender*) as opposed to having limited options based on activity.

---

[4] There was a Cameroonian cowherd and a CAR refugee cowherd, a Cameroonian man hoeing and a CAR refugee man hoeing, a Cameroonian woman planting a tree, and CAR refugee woman planting a tree, a Cameroonian man planting a tree, and a CAR refugee woman planting a tree.

Community Garden

Personal Fields

Community Fields

Figure 4.4 Illustrations used for social arrangement activity: three backdrop drawings and figures representing Cameroonians and refugees.

Participants were asked "If this were a community field, who would work there and where would they work?". They had the freedom to choose any individual figure or figures and place them on the backdrop illustration as if they were working in the field. Each of the three scenes of community garden, personal field, and community field were conducted in a similar manner. Participant explanations of why they placed figures as they did were recorded in written notes. Placement of figures on the field was photographed and coded first using four categories, which were then collapsed to create two categories (Table 4.1).

Table 4.1 Two coding methods for the social arrangements of figures on backdrop field drawings captured in photographs.

4 Category Coding	Label	Description
1	Isolated	Only one group is present on the board
2	Separated	Both groups are present on the board, but they are separated
3	Mixed	Both groups are present on the board and are interspersed
4	Paired	Individuals are paired, one CAR refugee with one Cameroonian
Binary Coding		
1	Separated	CAR refugee and Cameroonian figures are placed separate from each other
2	Mixed	CAR refugee and Cameroonian figures are placed together and interspersed

Each participant response to the field arrangement in the community garden and community field were combined using the binary factors of separated or mixed, creating a combined variable with 3 possible codes. If an individual separated CAR refugees and Cameroonians in both the garden setting and field setting they received a 0. If they separated them in one scene and mixed them in the other they received a 1. Those who mixed figurines in both scenes scored a 2.

To assess whether a relationship exists between identity measures and preferred fieldwork arrangements, spatial grouping based on grid placement were used as an independent variable and placement codes were used as dependent variable in Kruskal-Wallace nonparametric test. Mann-Whitney U nonparametric test was used to determine whether there was variation across field placements based on variables *status* or *gender*.

4.5 Results

One-hundred and twenty-two people residing in 6 villages participated in the study (table 4.2). Twenty-five percent were Cameroonian women, 26% CAR refugee woman, 24% Cameroonian men, and 25% CAR refugee men. Sixty-two percent were ethnically Foulbé and 35% Gbaya (Table 4.3). Three percent were Pana or Karé, which are two ethnicities related to Gbaya, and were combined with Gbaya to create the variable "Non-Foulbé." The average number of years Cameroonian participants had lived in the village was 22, and for refugees, 4.5. Average household size was 9 members and number of children 6. Thirty-six percent of the participants were currently involved in IMC nutritional gardening programs. Twenty-five percent were not currently participating but had participated in previous years, and 39% of the sample had never participated. The demographic questions were followed by the 20 point survey on identity.

Table 4.2 Number of interview participants from each village, divided by Gender as female and male and Status as CAR refugee or Cameroonian (n=122).

Village	Cameroonian Women	CAR Refugee Women	Cameroonian Men	CAR Refugee Men	Total
Garga Pella	6	6	6	6	24
Nabemo	6	6	6	6	24
Fada	6	6	6	6	24
Djohong	6	6	6	7	25
Gbagba	5	5	5	5	20
Daniy[5]	0	5	0	0	5
Total	29	34	29	30	122

Table 4.3 Demographic information of all individual interview participants (n=122).

	Variable	*Frequency (Percent)*
Status	Refugees	63 (51.6)
	Cameroonians	59 (48.4)
	Total	*122 (100)*
Gender	Women	62 (50.8)
	Men	60 (49.2)
	Total	*122 (100)*
Ethnicity	Foulbé	75 (61.5)
	Gbaya	43 (35.2)
	Pana or Karé	4 (3.3)
	Total	*122 (100)*
Average People in Household		8.9
Average Number of Children		6
Average Years Spent in the Village		13.2

---

[5] Daniy was a small village and consisted of only three large households. After working with the women it became evident that all were refugees and they were not living with Cameroonians. It was impossible to meet with the men who were in the bush with the cows, so two focus groups were conducted with the women.

4.5.1 Superordinate and Subgroup Identity

The mean score for superordinate identity questions among the sample was 8.8, indicating that many participants felt most life activities should be inclusive and integrated. The sample mean score for subgroup identity scores was 2.8, demonstrating that the majority of people felt that refugees and Cameroonians had similar traditions and needs in most areas of life. CAR refugees had a lower subgroup identity score than Cameroonians (Table 4.4). Women had a higher superordinate identity score and a lower subgroup identity score than men.

Table 4.4 Summated means for each set of identity questions across Status and Gender. P values based on nonparametric Mann-Whitney U test (n=120).

	Superordinate Identity Mean Score	*P*	Subgroup Identity Mean Score	*P*
Sample	8.75		2.81	
Refugee	9.08	0.10	**2.90**	**0.00***
Cameroonian	8.40		**3.65**	
Women	**9.05**	**0.01***	2.20	**0.02***
Men	**8.45**		3.42	

Bold* =significant (α=0.05)

76

When superordinate scores were paired with corresponding subgroup scores and plotted on the identity grid, most participants were located in the upper left hand corner (high superordinate identity, low subgroup identity) (Figure 4.5). There is more variation along subgroup than superordinate responses among the sample, with ranges from 0 to 10 for subgroup scores, but very few superordinate scores located below 7.
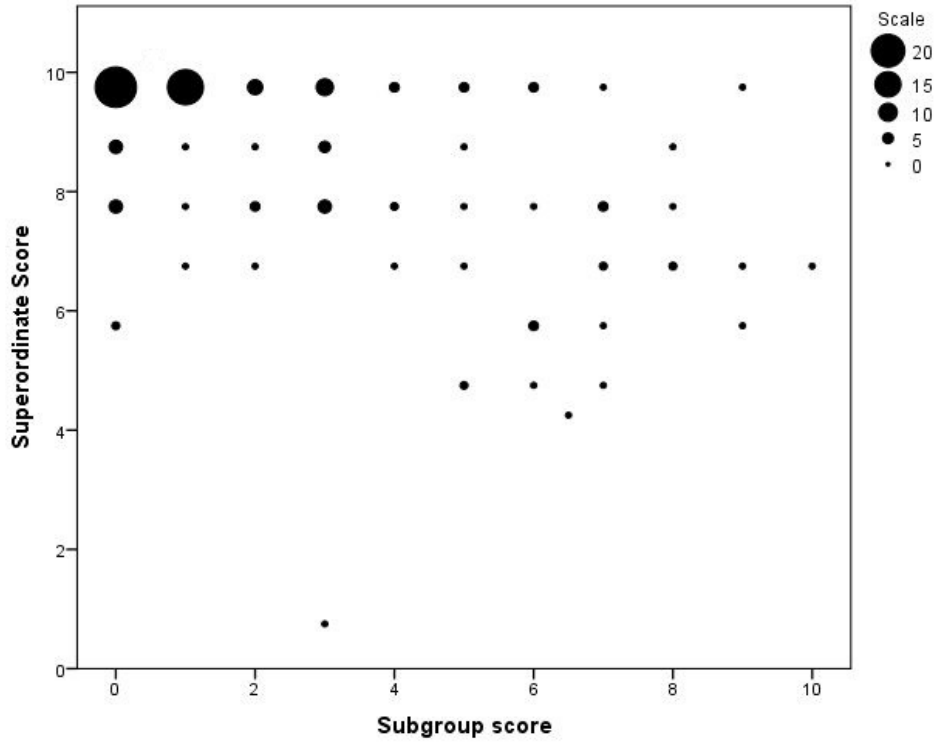
Figure 4.5 Frequencies of individual locations on Identity Grid using the combination of subgroup and superordinate scores for each participant.

When comparing location on the identity grid across variables of *status* and *gender* visually, it is apparent that CAR refugees have a greater concentration of people in the top left corner (high superordinate identity and low subgroup identity) than Cameroonians (Figure 4.6). Likewise, there is a greater concentration of women in the upper left corner when compared to men.
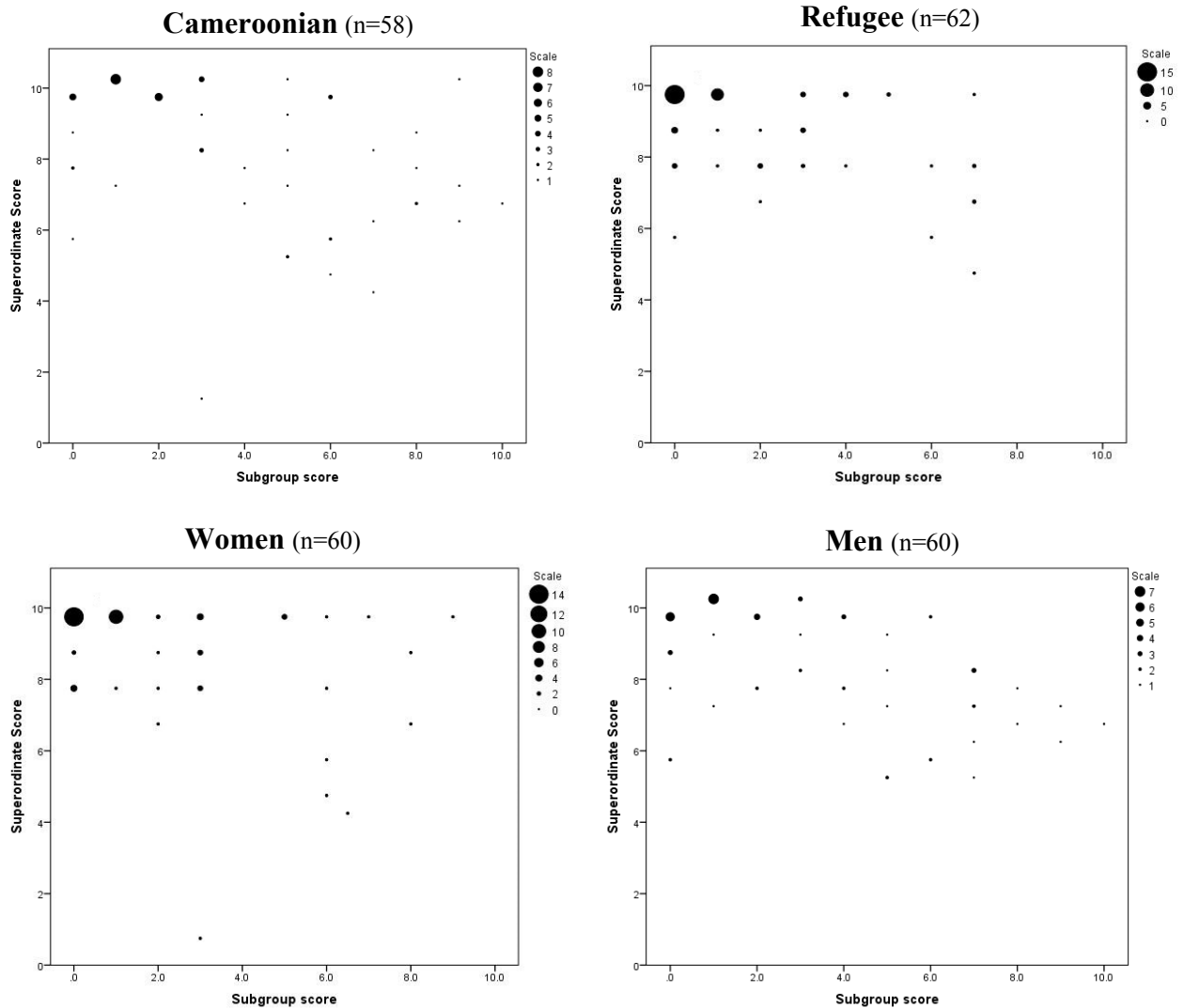
Figure 4.6 Locations of participants on Identity Grid based on superordinate and subgroup scores, broken down by variables of Status and Gender.

4.5.2 Identity Questions by Theme

Based on results from superordinate questions, a large majority of the sample felt that refugees and Cameroonians should be integrated across all five themes (Table 4.5). Respondents were most comfortable mixing in education, followed by marriage and least comfortable with agricultural integration. With respect to subgroup identity, the majority said that traditions between refugees and Cameroonians were more similar than different (Table 4.6). However, more felt there were differences between refugees and Cameroonians in terms of leadership and household traditions when compared to other themes. Of the five themes, traditions in marriage and education were those which the highest percentage of the sample felt were similar among refugees and Cameroonians.

Refugees and Cameroonians differed most in their Superordinate Marriage, Subgroup Leadership and Subgroup Living Quarters scores. More CAR refugees than Cameroonians said that it was acceptable to intermarry and a greater percentage of Cameroonians said that leadership and household traditions are different between refugees and Cameroonians.

Table 4.5 Frequencies and percentages of scores 0-2 for themed superordinate identity questions for the sample (n=120).

Superordinate Identity		Marriage	Education	Agriculture	Leadership	Households
	0	7 (5.8)	1 (0.8)	15 (12.5)	7 (5.8)	6 (5.0)
Sample	1	5 (4.2)	12 (10.0)	17 (14.2)	22 (18.3)	22 (18.3)
	2	108 (88.5)	107 (89.2)	88 (73.3)	91 (75.8)	92 (76.7)
	0	0 (0.0)	0 (0.0)	6 (9.7)	1 (1.6)	1 (1.6)
Refugees	1	2 (3.0)	7 (11.3)	8 (12.9)	13 (21.0)	11 (17.7)
	2	60 (96.8)	55 (88.7)	48 (77.4)	48 (77.4)	50 (80.6)
	0	7 (12.1)	1 (1.7)	9 (15.5)	6 (10.3)	5 (8.6)
Cameroonians	1	3 (5.2)	5 (8.6)	9 (15.5)	9 (15.5)	11 (19.0)
	2	48 (82.8)	52 (89.7)	40 (69.0)	43 (74.1)	42 (72.4)
P		**0.02***	0.53	0.53	0.11	0.20
	0	5 (8.3)	1 (1.7)	3 (5.0)	2 (3.3)	1 (1.7)
Women	1	0 (0.0)	6 (10.0)	8 (13.3)	11 (18.3)	8 (13.3)
	2	55 (91.7)	53 (88.3)	49 (81.7)	47 (78.3)	51 (85.0)
	0	2 (3.3)	0 (0.0)	12 (20.0)	5 (8.3)	5 (8.3)
Men	1	5 (8.3)	6 (10.0)	9 (15.0)	11 (18.3)	14 (23.3)
	2	53 (88.3)	53 (90.0)	39 (65.0)	44 (73.3)	41 (68.3)
P		**0.04***	0.60	**0.04***	0.50	0.07

Bold* =significant (α=0.05)
0="separate" for the two questions
1="separate" for one question and "together" for the other
2= "together" for both questions

Table 4.6 Frequencies and percentages of scores 0-2 for themed subgroup identity questions (n=120).

Subgroup Identity		Marriage	Education	Agriculture	Leadership	Households
Sample	0	81 (67.5)	78 (65.5)	68 (56.7)	66 (55.5)	66 (55.5)
	1	26 (21.7)	24 (19.7)	37 (30.8)	26 (21.8)	29 (24.2)
	2	13 (10.8)	17 (13.9)	15 (12.5)	27 (22.7)	25 (20.8)
Refugees	0	45 (72.6)	46 (74.2)	38 (61.3)	44 (72.1)	42 (67.7)
	1	12 (19.4)	10 (16.1)	16 (25.8)	11 (18.0)	14 (22.6)
	2	5 (8.1)	6 (9.7)	8 (12.9)	6 (9.8)	6 (9.7)
Cameroonians	0	36 (62.0)	32 (56.1)	30 (51.7)	22 (37.9)	24 (41.3)
	1	14 (24.1)	14 (24.6)	21 (36.2)	15 (25.9)	15 (25.9)
	2	8 (13.8)	11 (19.3)	7 (12.1)	21 (36.2)	19 (32.8)
P		0.42	0.11	0.46	**0.00***	**0.00***
Women	0	44 (73.3)	46 (78.0)	41 (68.3)	33 (55.9)	37 (61.7)
	1	12 (20.0)	8 (13.6)	16 (26.7)	14 (23.7_	13 (21.7)
	2	4 (6.7)	5 (8.5)	3 (5.0)	12 (20.3)	10 (16.7)
Men	0	37 (61.7)	32 (53.3)	27 (45.0)	33 (55.0)	29 (48.3)
	1	14 (13.0)	16 (26.7)	21 (35.0)	12 (20.0)	16 (26.7)
	2	9 (15.0)	12 (20.0)	12 (20.0)	15 (25.0)	15 (25.0)
P		0.26	**0.02***	**0.01***	0.79	0.32

Bold* =significant (α=0.05)
0 = "similar" for the two questions
1 = "similar" for one question and "different' for the other
2= "different" for both questions
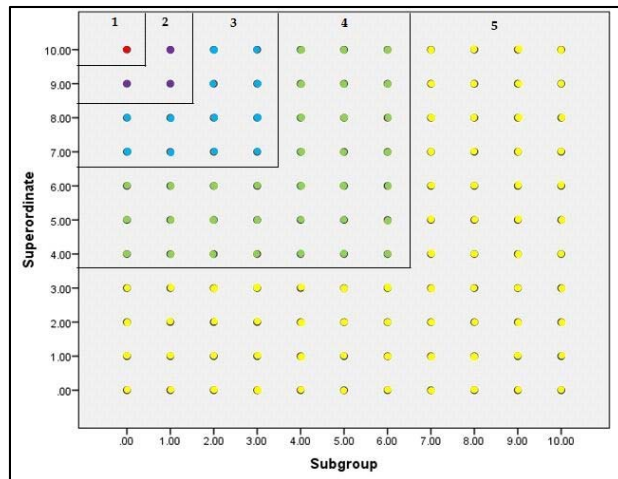
4.5.3 Social Arrangements in Fieldwork

Participants were fairly evenly split between separate or mixed placements on the Community Garden and Community field backdrops (Table 4.7). The Community Garden had the largest percentage of placements in mixed arrangements. Sixty-two percent of participants separated CAR refugees and Cameroonians on the personal field backdrop drawing. To determine whether a certain group was more likely to prefer mixing or separating on the agricultural backdrop, Pearson's chi square analysis was used, and results showed there was no significant difference in placement on any backdrop setting with respect to *status, gender,* or *ethnicity*.

Table 4.7 Frequency of arrangement outcomes of people on backdrop drawings (n=122).

Scene	Separate	Mixed	Total
Community Garden	49 (40.2)	73 (59.8)	122
Community Field	57 (47.5)	63 (52.5)	120
Personal Field	76 (62.3)	46 (37.7)	122

4.5.4 Relationship between Identity and Fieldwork Social Arrangement Preferences

When the identity grid is broken down into regional groupings, the result is a distribution ranging from 18-34 respondents in each region (Figure 4.7). Using coded identity grid locations, Kruskal-Wallace nonparametric test results signify that there is no relationship between grid plot location and placement on the field backdrops (Table 4.8). This test was also used with subgroup and superordinate scores and signals that there is no relationship between subgroup scores and placement but there is a relationship between superordinate scores and placement. Those who scored more highly on the superordinate scale were more likely to mix CAR refugees and Cameroonians on the agricultural backdrops.

Figure 4.7 Identity Grid divided into 5 regions from upper left corner, and the distribution of frequencies of respondents located in each region.

Region	Number
1	20
2	24
3	34
4	24
5	18

When considering individual responses of agriculture questions in relation to placements on the fields, 88% of the sample noted that agriculture should include CAR refugees and Cameroonians and that it was acceptable for them to work together on one field (Table 4.9). Yet only 46% of the sample integrated CAR refugees and Cameroonians on both the Garden and Field backdrops.

Table 4.8 Results of Kruskal-Wallace tests looking at relationships between Garden and Field Placements with Location on Identity Grid, Subgroup Score, and Superordinate Score (n=120).

Garden and Field Placement combination (0,1,2)	P
Location on Identity Grid (1-5)	0.086
Subgroup Score (0-10)	0.448
Superordinate Score (0-10)	**0.00***

Bold* =significant (α=0.05)
0=separate on both backdrops
1=mixed on one and separate on the other
2=mixed on both

Table 4.9 A comparison of frequencies of superordinate agriculture responses to arrangement outcomes (n=120).

Code	Superordinate Agriculture Questions	Garden and Field Placement Combination
0	15 (12.5)	32 (26.7)
1	17 (14.2)	42 (35.0)
2	88 (73.3)	46 (38.3)

Superordinate Agricultural Questions:
0="not acceptable to farm together" & "agriculture should not include refugees and Cameroonians"
1=responded affirmatively to one question and negatively to the other
2="it is acceptable to work together in one field" & "agriculture should include both."
Garden Field Placement combination coding:
0= separate in both the Garden setting and Field setting
1=separate in one scene, mixed in the other
2=mixed in both scenes

4.6 Discussion

CAR refugees began settling in and around host communities in the Djohong District in the Adamaoua Region of Cameroon more than 10 years ago. Most host communities have welcomed the refugees, providing homes to live in and fields to cultivate. Though many areas of life are integrated, divisions still exist. In some villages, refugee homes are interspersed through the village, while in others, there are separate refugee neighborhoods. Some community members participate in integrated agricultural projects and others do not. Identity plays a role in how groups and individuals interact with each other, and can influence preferences for social arrangements in many areas of life. Where two groups of people come together, it is important to understand how perceptions of identity may open up opportunities for collaboration or foster division and conflict.

Jacobsen and Landau (2003) point out that many refugee studies lack methodological rigor, particularly in sampling procedures. We carried out systematic research on issues of identity and agricultural cooperation among CAR refugees and host national Cameroonians. The approach resulted in even distribution across *status* and *gender*. Ethnicity was not equally represented, however it did reflect more general trends of populations in the villages we sampled, as the vast majority of refugees from CAR are Foulbé. Because of careful planning and execution across these variables, overall rigor and follow-up analysis were improved.

Age was normally distributed, averaged 42, and included both young and older community members. It was surprising that there were not major differences between refugees and Cameroonians in household size or number of children, as many refugees explained that they lost or were separated from family in the unrest or subsequent settlement. Our sample also included people who were participating, had participated, and had never participated in the IMC gardening program. This representation gave a wider perspective on identity of community members, than what would have been represented with only garden participants.

Results of this research suggest that there are differences between refugees and Cameroonians, and men and women in terms of group and community identity. Yet results also demonstrate that there is

no connection between measured identity and preferences for working together or separately in agricultural projects. Survey responses demonstrate that the way people answer survey questions may diverge from how they demonstrate preferences for social interaction using visual research tools.

4.6.1 Identity

Results indicate that there is a high level of spoken acceptability for integration of refugees into local host communities in many sectors of life, voiced by both Cameroonians and refugees. Refugees tended to see more similarities between themselves and Cameroonians than Cameroonians did, and they were more open to integration. This could be due to their position as outsiders and this result aligns with previous findings that many resettled refugees often feel that cultural integration is necessary (Atfield et al. 2007). Some Cameroonians may be more wary of refugees as outsiders posing a potential threat to their way of life or access to resources, and as a result, perceive fewer similarities with refugees and hesitate to support integration within every sphere of community life.

Members of less prestigious subgroups often prefer to self-identify with a superordinate identity as a way to gain access to rights and resources (Hornsey and Hogg 2000a). Thus refugees, who often retain less power and fewer rights, may prefer to identify as a community or ethnic group member rather than as a refugee. Contrarily, if Cameroonians sense more power, many may prefer to maintain and emphasize their subgroup membership as Cameroonians, because they need no identity enhancement. While our research did not look at self-categorization at a superordinate level, it did demonstrate that refugees are more likely to see similarities between groups and appear to want greater inclusiveness, related to the ideas of self-categorization for members of subgroups with lesser power or prestige.

The highest number of respondents supported integration in terms of *Marriage* and *Education*. It was not surprising that refugees were more likely to believe that intermarriage is acceptable, given the propensity to seek integration as outsiders. Many people in both groups voiced the belief that marriage is a gift and should be accepted regardless of origin of the wife or husband. Refugees and Cameroonians felt education should be integrated for many reasons. While some supported integrated education because

they were concerned that both refugees and Cameroonians receive equal benefits and opportunities through schooling, others felt that all children should learn together. These two community themes were also those in which more participants felt there were similarities between traditions of refugees and Cameroonians. This suggests links between integration and perception of similar traditions. Where traditions are not different, threats associated with integration may be considered less.

In general, according to superordinate identity scores, participants were slightly less comfortable with integration in *Leadership* and *Households* than *Marriage* and *Education*. There was no difference in these tendencies across *status* or *gender*. When it comes to subgroup identity scores of *Leadership* and *Households*, in other words, how distinct people felt traditions and needs were, the significant differences between refugees and Cameroonians may reflect Cameroonian sensitivity to seeing differences and desiring separation, while refugees would be more inclined to see similarities in the hope of being accepted.

Agriculture was the sector with the highest number of people expressing opposition to integration. As the literature suggests, land use may be the area where host community members feel greatest threat and therefore most strongly resist mixing with refugees. The fear of losing land permanently may be one reason that integration in fieldwork was less acceptable to the sample. Women were more likely to accept agricultural integration when compared to men. This could be because in many community agriculture projects, such as community gardens, women often are majority participants and may therefore have greater experience working with members of other groups. Women were also more likely to believe that traditions and needs in agriculture were similar between refugees and Cameroonians.

4.6.2 Social Arrangement in Fieldwork

Results of the visual storytelling activity demonstrate that there is a high level of willingness to integrate in agricultural settings. We were interested in learning who would be most likely to prefer mixing in fieldwork. The results of the study show that those who prefer mixing include members of all

surveyed groups. There was no tendency based on *status* as refugee or Cameroonian or *gender* to mix or separate people in fieldwork. It was surprising that no trends emerged as it could have been expected that women or refugees would be more likely to mix figures on the board as both groups had higher superordinate scores. That there were members in all groups who demonstrated inclination to integrate suggests that there is plentiful opportunity for integrated agricultural projects.

4.6.3 Identity and Social Arrangements for Fieldwork

According to Hornsey and Hogg's (2000) description of subgroup relations, best relations between groups occurs when there is strong superordinate identity and subgroup identities activated and valued. Results suggest the relationship between location on the identity grid and fieldwork arrangements are not significant. One potential reason is because the grid does not account for time.

The importance of a valued subgroup identity is to guard against identity threat, a situation where people feel their individual and unique group identity is lost. This is a phenomenon which may be sensed at different times. It is understandable that recently settled refugees are more interested in being accepted into their new communities. Thus they may psychologically downplay subgroup differences. Our results suggest that refugees tend to be less likely to champion subgroup identities. Likewise, Cameroonians may be more sensitive to differences between refugees and Cameroonians if they feel threatened.

However, it may be that after a certain amount of time a loss of unique identity among immigrants is increasingly sensed. As such, it could be that refugees that have been settled for long periods of time or second generation immigrants will feel the need for more distinction. Indeed Hornsey and Hogg (2000) note that members of lower status groups might try to assimilate first, but after time they may feel the effects of assimilation and return to subgroup loyalty. This would more likely be true where immigrant traditions and differences are dissimilar from the culture into which they are settling. Where cultures are similar, there may be less likelihood that identity threat will be sensed over time whereas potential for complete assimilation could increase. In areas of immigrant research it would be helpful to return over the course of generations to monitor changes in subgroup and superordinate identity.

Superordinate scores suggested that many people were comfortable with integration between refuges and Cameroonians in each of the five life themes. However, nearly half separated refugees and Cameroonians in the placement measure. The juxtaposition of questionnaire responses with the placement activity results draws out important differences not observable using only questionnaires. Nearly 75% of the respondents stated both that agriculture should include refugees and Cameroonians and that it is good for refugees and Cameroonians to work together on one field in farming. When looking at actual arrangements, only 38% mixed refugees and Cameroonians on both the garden and field setting. Thus there is a shift from the majority of people "verbally mixing people" and much fewer actually symbolically mixing people.

This shift highlights multiple points. For one, people may be comfortable with integration in theory, but not in practice. When thinking about agriculture as integrated, it may be considered acceptable, but when they actually find themselves arranging people in practice (in life or in the representative activity) they may be less comfortable with integration. Additionally, one agricultural question asked "Should agriculture include both refugees and Cameroonians?" while the other asked "Is it acceptable for refugees and Cameroonians to farm together on one field?" The first question may have been answered affirmatively by participants who may not prefer integrated fieldwork and would separate figures on the backdrop drawing. Thus, for many it may be that community agricultural life should be inclusive but not necessarily integrated.

What this shift demonstrates methodologically is that researchers and aid or development workers interested in eliciting information on group relations in similar settings may find more success in using less structured methods, which allow for freedom and creativity of expression of participants. Visual methods may prevent response bias that is more likely with verbal questionnaires, and such methods may provide more descriptive and trustworthy information on respondent attitudes and preferences for social arrangements and group relations.

4.6.4 Expanding Themes of Identity and Group Relations

Hornsey and Hogg (2000a) argue that the objective for integrating new groups of people into an existing community should not be complete assimilation, but rather maintenance of unique identities in concert with membership to the larger community. The majority of participants in the communities we studied had high superordinate scores, stating that they felt village life should be integrated. However, subgroup scores were more varied. Many participants did say that refugees and Cameroonians have different traditions and needs, but many still maintained that village activities should be integrated and include both refugees and Cameroonians. This suggests a beneficial environment in which differences between groups of people do not pose a barrier to integration and cooperation.

Verbal explanations and conversations with community members support the fact that this particular refugee setting is a very good one for those involved. There are certain characteristics of natural and social resources that have created such an environment. Most people, refugees and Cameroonians alike, stated that there was plenty of land available for people to farm. Refugees were given land tenure rights by local chiefs. Community members also stated repeatedly that there was plenty of fuelwood and forest available. As a result, the additional population of refugees was less often seen as competition for natural resources than extra potential manpower to increase agricultural productivity and village size, both benefits to people living in the region. Because refugees have been self-settled and spread through the region, as opposed to contained in one area, they are more easily integrated into community life. Borders and boundaries that are present in refugee camp scenarios help to build walls in a sense of community identity as well. Local integration and availability of land and other resources allows refugees to participate in community life, begin to sustain themselves through farming, and creates more opportunity for mixing between refugees and host community members. These factors are likely what led to openness of mixing and integration among the sample population.

In regions where land is more scarce, and competition more likely, there is likely to be greater conflict between refugees and host community members. It is probable to expect in such scenarios that people might see greater dissimilarity between group members, and the tendency to pull away from other

groups in order to emphasize a distinct identity. It would also be expected to see less desire for integration and openness to working together.   In these scenarios, if using similar measurement scales as our study, one could expect higher subgroup identity scores and lower superordinate identity scores.

Our findings also suggest that integration and the role of identity will look different where refugees settle in neighboring countries when compared to settlement in the Global North. Most literature on identity and integration of refugees revolves around resettlement and integration into Western nations. In these scenarios, differences in culture, traditions, and way of life will most likely be much more pronounced than in settlement in neighboring regions. As such, there may be an imperative to retain individual identity. Threat to subgroup identity is more likely to be sensed by these refugees, than those who settle in communities wherein similar ethnic groups and traditions exist. While this is true, it is important not to dismiss differences that are felt where refugees settle into neighboring regions.

Though ethnicity was shared across borders, both refugee and Cameroonian participants stated that traditions were different for refugees and Cameroonians despite these connections. Where societies are homogenous, even small differences in tradition, which may be born from living in different villages, can be more conspicuous or effectual. Along these lines, while perhaps not as strong for refugees settling in North America or Europe, identity threat may still exist, as refugees feel that differences and unique traditions must be jettisoned in order to integrate into their new community.

Self-categorization is an important element of social identity (Stets and Burke 2000). This begs the question as to whether refugees and Cameroonians, some of whom have been living together for nearly a decade, readily recognize labels of *refugee* and *Cameroonian*. This is particularly relevant as many of the individuals of this region are semi-nomadic pastoralists whose residences have spanned multiple countries throughout their lives. For such people, national identities may not be as important as other identities, such as ethnicity or clan (Gale 2006). As such, "refugee", linked to a country of origin other than where they are currently residing, could be considered a similar term. A refugee is defined by the 1951 Refugee Convention as a person who has been forced to leave one's country and crossed international border fleeing persecution or fear of harm (UNHCR 1992).

Our results suggest that refugees in the region did identify with the term in a very clear sense, but it seemed to relate more to what they had endured, and less to country of origin, thereby the second part of the 1951 definition pertaining to flight and harm rather than the first of "leaving one's country." The term refugee is also often equated to the possession of a refugee identity card and the rights (and aid) that that entitles. Thus even where national identities may not be as relevant or recognized by many community members, the label of "refugee" was universally recognized.

However, the majority of the sample, including the semi-nomadic pastoralists, did recognize a defining sense of national borders, and that seemed to play a role in identity. One Cameroonian Peul (Foulbé ethnicity) very strongly sensed his Cameroonian identity and saw more similarity between himself and a Cameroonian Gbaya than himself and fellow Foulbé. Another refugee Peul (Foulbé ethnicity) pastoralist who had migrated throughout his life spoke of loving Cameroon and the Cameroonian president and government, because there was not violence there. Thus while surprising, and historically meaningless, perhaps African national borders have gained more significance through time, even for nomadic pastoralists, and especially for refugees fleeing persecution in one country and finding aid and shelter in another.

Social labeling plays a role in social group identification. Recategorization is one method for potentially mitigating intergroup conflict in situations where subgroup identities are threatened (Hewstone and Greenland 2000). It could therefore be that using the categories of *Cameroonian* and *refugee* may be prohibitive with respect to integration over time. In the case of CAR refugees in Cameroon, most have settled permanently in Cameroonian communities and it seems likely that the Cameroonian government will eventually issue national identity cards. Even so, it is likely that individual refugees will maintain some semblance of identity as refugees because the label expresses their life story. While many in our study still sensed a clear distinction between refugees and Cameroonians, this may decrease as time progresses and it could be that continued term-based distinction could stand in the way of integration, if predominate beyond a generation. Status as a refugee or Cameroonian is not an identity which aligns with more static identities such as gender, ethnicity, and potentially religion, especially if communities

where they settle offer benefits such as citizenship. Models of group relations and group conflict have not been as frequently studied in a refugee context as in others, and they will shift over time and through generations. Thus, models of subgroup relations where boundaries are less rigid and more changeable over time merit further study and scholarship.

Relationships between groups of people can be improved when contact between the two groups exists, but contact between groups can also cause conflict, especially where inequalities of resources exist (Allport 1954; Pettigrew 1998; Hewstone and Greenland 2000). Working on community based agricultural projects is one potential avenue for beneficial contact between refugees and host community members. If this contact is to be beneficial and successful certain conditions should be facilitated, including equal status between group members; prolonged, meaningful, and pleasant contact; familiarity beyond a superficial level; support of leaders and authorities; and opportunities to work together towards a common goal (Hornsey and Hogg 2000a). In addition, identity of group members should be given attention.

Identity is an important consideration in the development of aid programs in refugee contexts, and certain projects play a role in developing a stronger superordinate identity. In a study of internally displaced people in Colombia, Hill et al. (2006) described how certain community livelihood projects aided in changing negative perceptions of migrants, and as a result host community members began to view them as contributing community members which fostered the development of functional relationships. Likewise agricultural projects in similar contexts can serve as the contact environment in which refugees and host community members build relationships and develop a cohesive superordinate identity in which subgroup distinctions are encompassed and embraced.

4.7 Conclusions

Identity plays an important role in group relations and is a useful construct for understanding potential conflict or collaboration between groups. Where refugees settle in host communities, identity theory may be valuable for investigating and interpreting integration. Hornsey and Hogg (2000a) describe how cooperation between groups relates to subgroup and superordinate identity. In order to answer our research question, this study measured and assessed identity and social relations among 63 CAR refugees and 59 Cameroonians in the Adamaoua Region in Cameroon. A questionnaire and visual storytelling activity were used to gather data on opinions on social integration and physical representation of preferred social arrangements between refugees and Cameroonians in agricultural work. Fieldwork observations were especially important because: 1) scarce land can lead to conflict; 2) livelihoods for many are derived from it; and 3) there is opportunity for cooperation through community agricultural projects.

Results of the questionnaire indicate that the majority of refugees and Cameroonians shared a strong superordinate identity and blurred or did not emphasize subgroup identity. Thus most community members felt that many aspects of village life should be integrated, and many saw similarities between traditions of refugees and Cameroonians. Refugees tend to perceive that there are fewer differences between both groups and that more elements of village life should be integrated and inclusive, than Cameroonians. Most respondents were comfortable with intermarriage and integrated education. Agriculture was a sector of life that fewer respondents were comfortable with integration.

Through the visual storytelling activity, the majority of the sample mixed refugees and Cameroonians on the field backdrop. An interesting finding was that responses to the verbal questions about integration in agricultural work differed greatly from responses based on the demonstrated visual storytelling activity. This illuminated the fact that research methods allowing respondents to demonstrate preferences for relations may yield different results than purely cognitive responses, and may serve to tease out nuances that could be overlooked in traditional questionnaires.

It is striking that, of the variables measured, none emerged as those who would be most likely to mix or separate refugees and Cameroonians in the field activity. Across status as refugee, gender, ethnicity, age and village, there were no subgroups more likely to mix than others. This suggests that there are members across all demographics who would be willing to work in cooperative settings and, when located, can be the bridges to increasing positive contact and thus effectively foster integration in a changing community.

Our findings support that this particular refugee scenario seems to be a good situation for most community members, and could be due to the availability of natural resources and self-settlement among similar ethnic groups by refugees. The measurement of identity and social arrangements for projects is helpful for those working among refugee and host community populations, as well as those studying identity and group relations in other contexts.

CHAPTER 5. CONCLUSIONS

An influx of refugees into an area impacts community natural resources management and social structures and traditions. Communities hosting refugees must adapt in their management of natural resources and social relations. Agroforestry is a tool that can be applied to mitigate both natural resource and social challenges often present in such contexts. Using identity as a framework is one way to evaluate potential for integrated village activities in a refugee and host community population, and community agroforestry projects offer one venue for contact and mutual contribution necessary for integration and the evolution of community. Our research question looked at how agroforestry might play a role in refugee communities to solve environmental and social challenges. The two objectives of this research were to learn about preferences for agroforestry techniques among refugees and Cameroonians and to explore desired social arrangements in agricultural activities, using a frame of identity to shed light on social integration and fieldwork arrangements.

Research was carried out with 122 community members in 6 villages in the Adamaoua Region of Cameroon. Research participants included CAR refugees and host community Cameroonians. Methods included a 20 question survey on identity and illustrated agroforestry ranking and visual storytelling activities. Results were analyzed for the entire sample and divided across variables of *status* as refugee or Cameroonian, *gender*, and *ethnicity* to understand similarities and differences among participants in needs as well as perceptions of specific agroforestry techniques. Additionally, the link between identity and preferences for social arrangements in fieldwork was tested.

Our research question and objectives were met through the data we collected. Overall, we found that there were many people in all groups interested in agroforestry implementation and also in agricultural integration and cooperation between refugees and host community members. We found that preferences for specific agroforestry practices were varied across the sample. While many similarities existed across variables of status, gender, and ethnicity, the majority of differences were between refugees and Cameroonians. Refugees focused more on product-based techniques, and were primarily concerned

96

with food-related techniques. Participants as a whole preferred to carry out service-based practices in groups and product-based practices as a family. Refugees tended to prefer to carry out techniques in groups, while more Cameroonians preferred to carry them out as a family. Agroforestry preferences illustrate the focus of refugees to meet primary needs and desire to have the support of resources and other community members. Cameroonians, in a position of more stability and access to resources, had more freedom to work as a household and to expand agroforestry interests to longer-term conservation practices. Many participants voiced interest in agroforestry techniques, though some coupled this with a lack of resources and knowledge about implementation. People working in extension should be aware of this desire and need in order to provide agroforestry resources in a form that is desirable and accessible by different people.

The majority of study participants felt that many spheres of community life should be integrated and that traditions and needs of refugees and Cameroonians were similar rather than different. Agriculture was the sphere in which the least amount of people were comfortable with mixing. Thus working in this area takes more conscious care and deliberate methods. There were no strong links between levels of identity and preferences for integrated or separated fieldwork. Additionally, there were no demographic characteristics that unify those who integrated or separated in fieldwork. This illustrates that many different types of people are open to mixing and could be important participants in unified community agroforestry projects.

The contrast of oral abstract questions on agricultural integration and the illustrated storytelling activity which visually demonstrated similar themes exhibited that many people may be comfortable with agricultural integration in theory, yet less comfortable with actual integration on the ground. These findings also highlighted the efficacy of using visual, creative survey methods, especially in similar populations. Visual survey methods are a way to capture information which participants may be unconscious of or hesitant to acknowledge orally.

This research fills the gap in both agroforestry and refugee studies literature by providing a rigorous study on agroforestry potential within the context of refugee and host community populations.

97

The research also contributes to the body of literature on refugee and host community relations, adding the dimension of identity and its relation to preferences for integration and agricultural collaboration to that which exists.

Our results are especially useful for those working on implementing agricultural projects in the region, demonstrating that agroforestry could be a good addition to many current programs, but should be undertaken with awareness of varied needs and desires of different social groups. With the introduction of agroforestry in such settings, natural resources can be conserved and enriched; the food, fodder and fuel needs of community members can be more easily met, and social relations could be improved. Beyond the region of study, the results could be helpful to other organizations working in refugee contexts who are also interested in potential agroforestry projects as a part of their programming.

Results of this research would also be helpful for aid agencies and policy makers looking at integration and/or group relations, demonstrating varied ways of measuring preferences for social integration and cooperation. Similar methods could be used to highlight specific types of people in a community who would be interested in collaboration and their characteristics. This information and these methods are applicable not only in refugee contexts, but in any context with diverse and distinct social groups living together.

In the area of agroforestry preferences, further investigation would be helpful in breaking down the group/family implementation aspect of this research. It would be interesting to explore specific reasons that CAR refugee and Cameroonians chose group or family implementation and a closer examination of explanations for group/family choices by technique would also be helpful. This would provide more solid information of needs and would improve project design for each practice. Exploration into who would make up groups for group choice could also be helpful in illuminating differences in how various groups relate to each other. This research would shed more light on life situations and needs of respective groups and inform decisions about how agroforestry projects should be designed to support communities with both populations.

In the area of group relations, the visual storytelling activity that we developed could be used in a more in-depth fashion, generating more qualitative data which could be analyzed for reasons behind certain types of social arrangements demonstrated on the field backdrops. It could also be translated to other types of scenarios, introducing other elements, such as neighborhood settings. The process could be used to show different specified agroforestry projects to explore whether people see certain groups of people working on certain projects and not on others. This information would shed light on perceived community domains, perceived strengths and skills of group members, and best ways of social arrangement for various community agroforestry projects.

It would be interesting to carry out a longitudinal study using similar measurements of subgroup and superordinate identity, as these may be likely to change and shift over time and through generations. As a result, group relations could shift in two directions, as refugees settle they could become more integrated and unified into the community, or if resources become scarce and there is a sense of competition, conflict could result. Because identity and integration are not unalterable, longitudinal studies along these themes could be very helpful to the understanding of group relations in refugee contexts.

REFERENCES

Adjaloo, M., K. Kilpatrick, K. Hampshire, G. Porter, P. Kyei, and G. Rapoo. 2008. "Linkages between livelihood opportunities and refugee-host relations: Learning from the experiences of Liberian camp-based refugees in Ghana." *Journal of Refugee Studies* 21 (2): 230-252.

Agblorti, S.K.M. 2011. "Humanitarian assistance to refugees in rural Ghana: Implications for refugee-host relations." *Norwegian Journal of Geography* 65 (2):75-82.

Agea, J.G., J. Obua, J.R.S. Kaboggoza, and D. Waiswa. 2007. "Diversity of indigenous fruit trees in the traditional cotton-millet farming system: The case of Adwari subcounty, Lira district, Uganda." *African Journal of Ecology* 45: 39-43.

Ahmed, M.R. 1999. Gender analysis in participation, productivity and equity in social forestry programs in Bangladesh. PhD, North Carolina State University

Alam, M., Y. Furukawa, and M. Mika. 2010. "Perceptions, preferences and attitudes of Bangladesh farmers towards homegarden farming systems." *Small-scale Forestry* 9(2): 213-226.

Allport, G.W. 1954. The nature of prejudice. Reading, MA, Addison-Wesley

Arnold, J.E.M. 1983. "Economic considerations in agroforestry projects." *Agroforestry Systems* 1 (4):299-311.

Atfield, G., K. Brahmbhatt, and T. O'Toole. 2007. "Refugees' experiences of intergraiton." Refugee Council and University of Birmingham.

Barron Ausbrooks, C., E. Barrett, and M. Marinez-Cosio. 2009. "Ethical issues in disaster research: Lessons from Hurricane Katrina." *Population Research and Policy Review* 28 (1) 93-106.

Berry, S.E. 2012. "Integrating refugees: The case for a minority rights based approach." *International Journal of Refugee Law* 24 (1): 1-36

Birchall, J. and R. Simmons. 2004. "What motivates members to participate in co-operative and mutual businesses?" *Annals of Public & Cooperative Economics* 75 (3): 465-495

Black, R. 1998. Refugees, environment, and development. Harlow, Essex, Longman

Black, R. and M.F. Sessay. 1997. "Forced migration, environmental change, and woodfuel issues in the Senegal River Valley." *Environmental Conservation* 24 (3): 251-260

Bonnard, P and S. Scherr. 1994. "Within gender differences in tree management: Is gender distinction a reliable concept?" *Agroforestry Systems* 25 (2): 71-93

Brewer, M.B. and N. Miller. 1988. "Contact and cooperation: When do they work?" in Eliminating racism: Means and controversies. P.A. Katz and D.A. Taylor. New York, Plenum Press: 315-326

Bruter, M. 2003. "Winning hearts and minds for Europe: The impact of news and symbols on civic and cultural European identity." *Comparative Political Studies* 36 (10): 1148-1179

Bruter, M. 2005. "Political identities and public policy: Institutional messages and the politics of integration in Europe." *Refugees Survey Quarterly* 24 (4): 43-46

Collier, J., Jr. 1957. "Photography in anthropology: A report on two experiments." *American Anthropologist* 59 (5): 843-859

D-maps.com. 2007-2013. Free world maps-Cameroon/Republique du Caméroun. Retrieved March 20, 2013 from http://d-maps.com/pays.php?num_pay=16&lang=en

Davis, K., S. Franzel, P. Hildebrand, T. Irani, and N. Place. 2004. "Extending technologies among small-scale farmers in Meru, Kenya: Ingredients for success in farmer groups." *The Journal of Agricultural Education and Extension* 10 (2)

Dutta, P. 2011. "Migration as source of risk-aversion among the environmental refugees: The case of women displaced by erosion of the River Ganga in the Malda District of West Bengal, India." Working Paper.

Ebling, M. R. and B.E. John. 2000. On the contributions of different empirical data in usability testing. Proceedings of the 3rd conference on designing interactive systems: processes, practices, methods, and techniques. New York City, New York, ACM: 289-296

Ferguson, H. and T. Kepe. 2011. "Agricultural cooperatives and social empowerment of women: a Ugandan case study." *Development in Practice* 21 (3): 421-429

Fischer, A. and L. Vasseur. 2002. "Smallholder perceptions of agroforestry projects in Panama." *Agroforestry Systems* 54 (2): 103-113

Fleischman, A. and E. Wood. 2002. "Ethical issues in research involving victims of terror." *Journal of Urban Health*. 79 (3): 315-321

Franzel, S. 1999. "Socioeconomic factors affecting the adoption potential of improved tree fallows in Africa." *Agroforestry Systems* 47 (1-3): 305-321

Gaertner, S.L., J.F. Dovidio, P.A. Anastasio, B.A. Bachman, and M.C. Rust. 1993. "The common ingroup identity model: recategorization and the reduction of intergroup bias." *European Review of Social Psychology* 4(1): 1-26

Gaertner, S.L., J.F. Dovidio, and B.A. Bachman. 1996. "Revisiting the contact hypothesis: the induction of a common ingroup identity." International Journal of Intercultural Relations 20 (3-4): 271-290

Gaertner, S.L., J.F. Dovidio, J.A. Nier, C.W. Ward, and B.S. Banker. 1999. Across cultural divides: the value of a superordinate identity. Cultural divides: Understanding and overcoming group conflict. D.A. Prentice and D.T. Miller. New York, Russel Sage Foundation: 173-212

Gale, L.A. 2006. "Livelihoods in the region: Sustaining relationships across borders: Gendered livelihoods and mobility among Sierra Leonean Refugees." *Refugee Survey Quarterly* 25(2): 69-80

Ghimire, K. 1994. "Refugees and deforestation." *International Migration* 32(4): 561-570

Harrell-Bond, B. 1998. Camps: A literature review. Forced Migration Review. Oxford, UK

Hewstone, M. and K. Greenland. 2000. "Intergroup conflict." *International Journal of Psychology* 35(2): 136-144

Hill, R., K.J. Diener, S. Miller, and T. White. 2006. "IDP livelihoods and personal security: Case studies from Colombia and Sudan." *Refugee Survey Quarterly* 25(2): 40-59

Hogg, M.A. and M.J. Hornsey. 2000a. "Assimilation and diversity: an integrative model of subgroup relations." *Personality and Social Psychology Review* 4(2): 143-156

Hornsey, M.J. and M.A. Hogg. 2000b. "Intergroup similarity and subgroup relations: some implications for assimilation." *Personality &Social Psychology Bulletin* 26(8): 948-958

Horst, C. 2006. "Introduction: Refugee livelihoods: Continuity and transformations." *Refugee Survey Quarterly* 25(2):6-22

Hugman, R., L. Bartolomei, and E. Pittaway. 2011a. "Human agency and the meaning of informed consent: Reflections on research with refugees." *Journal of Refugee Studies* 24(4): 655-671

Hugman, R., E. Pittaway, and L. Bartolomei. 2011b. "When 'Do No Harm' is not enough: The ethics of research with refugees and other vulnerable groups." *British Journal of Social Work* 41(7): 1271-1287

Jacobsen, K. 1997. "Refugees' environmental impact: The effect of patterns of settlement." *Journal of Refugee Studies* 10(1): 19-36

Jacobsen, K. and L.B. Landau. 2003. "The duel imperative in refugee research: Some methodological and ethical considerations in social science research on forced migration." *Disasters* 27(3): 185-206

Johnson, J. and O. Delgado. 2003. "Farmer perspectives on agroforestry opportunities and constraints in Cape Verde." *Small-scale Forest Economics, Management and Policy* 2(3): 343-355

Jose, S. and A.M. Gordon. 2008. Ecological knowledge and agroforestry design: An introduction. in Toward Agroforestry Design. S. Jose and A. Gordon, Springer, Netherlands. 4: 3-9

Kelso, A. and M. Jacobson. 2011. "Community assessment of agroforestry opportunities in GaMothiba, South Africa." Agroforestry Systems (online).

Kerkhof, P., G. Foley, and G.W. Barnard. 1990. Agroforestry in Africa: a survey of project experience. London, UK, Panos.

Kibreab, G. 1996. Ready and willing…but still waiting: Eritrean refugees in Sudan and the dilemmas of return. Horn of Africa Series. Uppsala, Life & Peace Institute.

Kibreab, G. 1997. "Environmental causes and impact of refugee movements: A critique of the current debate." *Disasters* 21(1): 20-38

Kiptot, E. and S. Franzel. 2012. Gender and agroforestry in Africa: Who benefits? The African perspective. Agroforestry-The Future of Global Land Use. P.K.R. Nair and D. Garrity, Springer, Netherlands. 9: 463-496

Kiptot, E., S. Franzel, P. Hebinck, and P. Richards. 2006. "Sharing seed and knowledge: farmer to farmer dissemination of agroforestry technologies in Western Kenya." *Agroforestry Systems* 68(3): 167-179

Kloos, P. 1969. "Role conflicts in social fieldwork." *Current Anthropology* 10 (5): 509-512

Knowles, J.G. and S. Thomas. 2002. Artistry, inquiry, and sense-of-place: Secondary school students portrayed in context. *Dancing the Data*. C. Bagley and M.B. Cancienne. New York, Peter Lang: 121-132

Krings, T. 1995. "Marginalisation and revolt among the Tuareg in Mali and Niger." *GeoJournal* 36(1): 57-63

Kuntashula, E. and P.L. Mafongoya. 2005. "Farmer participatory evaluation of agroforestry trees in Eastern Zambia." *Agricultural Systems* 84(1):39-53

Lassailley-Jacob, V. 1993. "Refugee-Host interactions: A field report from the Ukwimi Mozambican refugee settlement, Zambia." *Refugee* 13(6)

Laurent, P. J. and P. Mathieu. 1994. "Authority and conflict in management of natural resources: A story about trees and immigrants in southern Burkina Faso." *Forests, Trees and People Newsletter* 25: 37-44.

Lawrie, N. and W. Van Damme. 2003. "The importance of refugee-host relations: Guinea 1990-2003." *The Lancet* 362 (9383): 575

Leakey, R. 2012. Environmental resilience and agroforestry. Agroforestry-The Future of Global Land Use. P.K.R. Nair and D. Garrity, Springer, Netherlands. 9: 11-12

Leaning, J. 2001. "Ethics of research in refugee populations. *The Lancet* 357(9266): 1432-1433

Leavy, P. 2009. Method meets art: Arts-based research practice. New York, NY, Guilford Press

Lee, V. 2005. Me, Myself, and I…multiple identities and multiple meanings. The thoughts and consequences of Chinese, British and European identities. London School of Economics and Political Science

Mackenzie, C., C. McDowell, and E. Pittaway. 2007. "Beyond 'Do No Harm': The challenge of constructing ethical relationships in refugee research." *Journal of Refugee Studies* 20(2): 299-319

Markemann, A., A. Stemmer, M. Siegmund-Schultze, H.P. Piepho, and A. Valle Zarate. 2009. "Stated preferences for llama keeping functions in Bolivia." *Livestock Science* 124(1-3): 119-125

Martin, A. 2005. "Environmental conflict between refugee and host communities." *Journal of Peace Research* 42(3): 329-346

Mekoya, A., S.J. Oosting, S. Fernandez-Rivera, and A.J. Van der Zijpp. 2008. "Multipurpose fodder trees in the Ethiopian highlands: Farmers' preference and relationship of indigenous knowledge of feed value with laboratory indicators." *Agricultural Systems* 96(1-3): 184-194

Mouiche, I. 2011. "Democratisation and political participation of Mbororo in Western Cameroon." *Afrikaspectrum* 46(2): 71

Nair, P.K.R. 1989. Agroforestry systems in the tropics. Dordrecht, Netherlands, Boston, Kluwer Academic Publishers in cooperation with ICRAF

Nair, P.K.R. 1993. An introduction to agroforestry. Dordrecht, Boston, Kluwer Academic Publishers in cooperation with ICRAF

Namaalwa, J., M. Buyinza, A. Kirabo, and P. Byakagaba. 2011. "Agroforestry as a land conflict management strategy in Western Uganda." Environmental Research Journal 5(2): 42-48

National Resource Council Advisory Committee on the Sahel. 1983. Agroforestry in the West African Sahel. Washington, D.C., National Academy Press

Oberhauser, A. and A. Pratt. 2004. "Women's collective economic strategies and political transformation in rural South Africa." *Gender, Place and Culture: A Journal of Feminist* Geography 11(2): 209-222

Ogunlana, E.A. 2004. "The technology adoption behavior of women farmers: The case of alley farming in Nigeria." Renewable Agriculture and Food Systems 19(1): 57-65

Pauwels, L. 2011. An integrated conceptual framework for visual social research. The SAGE Handbook of Visual Research Methods. E. Margolis and L. Pauwels. London, SAGE Publications Ltd: 3-23

Pettigrew, T.F. 1998. "Intergroup contact theory." Annual Review of Psychology 49(1): 65-85

Pieterse, S. and S. Ismail. 2003. "Nutritional risk factors for older refugees." Disasters 27(1): 16-36

Pingali, P.L., S.D. Rozelle, and R.V. Gerpacio. 2001. "The farmer's voice in priority setting: A cross-country experiment in eliciting technological." Economic Development & Cultural Change 49(3): 591

Pisanelli, A., J. Poole, and S. Franzel. 2008. "The adoption of improved tree fallows in Western Kenya: Farmer practices, knowledge and perception." Forests, Trees, and Livelihoods 18(3): 233-252

Roberts, B., K.F. Ocaka, J. Browne, T. Oyok, and E. Sondorp. 2009. "Factors associated with the health status of internally displaced persons in Northern Uganda." Journal of Epidemiology and Community Health 63(3): 227-232

Rocheleau, D.E., F.R. Weber, and A. Field-Juma. 1988. Agroforestry in dryland Africa. Nairobi, International Council for Research in Agroforestry

Romanoff, S. 1993. Farmers' organization, research and diffusion of technology. Social Science Research for Agricultural Technology Development: Spatial and Temporal Dimensions. K.A. Dvorak: 51-64

Roothaert, R.L. and S. Franzel. 2001. "Farmers' preferences and use of local fodder trees and shrubs in Kenya." Agroforestry Systems 52(3): 239-252

Schraeder, P.J. 1986. "Involuntary migration in Somalia: The politics of resettlement." *The Journal of Modern African Studies* 24(4): 641-662

Sears, D.O., J. Citrin, S.V. Cheleden, and C. van Laar. 1999. Cultural diversity and multicultural politics: Is ethnic Balkanization psychologically inevitable. in <u>Cultural divides: Understanding and overcoming group conflict</u>. D.A. Prenice and D.T. Miller. New York, Russel Sage Foundation: 35-79

Stets, J.E. and P.J. Burke. 2000. "Identity theory and social identity theory." Social Psychology Quarterly 63(3): 224-237

Swaminathan, M.S. 2012. Agroforestry for an evergreen revolution. in <u>Agroforestry-The Future of Global Land Use.</u> P.K.R. Nair and D. Garrity, Springer, Netherlands. 9: 7-10

Tajfel, H. and J.C. Turner. 1979. "An integrative theory of intergroup conflict." <u>The Social Psychology of Intergroup Relations</u> 33:47

UNHCR. 1992. Handbook on procedures and criteria for determining refugee status: Under the 1951 Convention on the 1967 Protocol relating to the status of refugees

UNHCR. 2011. "2011 UNHCR country operation profile-Cameroon." Retrieved November 16, 2011 from http://www.unhcr.org/cgi-bin/texis/vtx/page?page=4a03e1926&submit=GO

UNHCR. 2011. "Refugee." Retrieved November 16, 2011 from http://www.unhcr.org/pages/49c3646c125.html

Unruh, J.D. 1993. "Refugee resettlement on the Horn of Africa: The integration of host refugee land use patterns." *Land Use Policy* 10(1): 49-66

Whitaker, B.E. 1999. Changing opportunities: Refugees and host communities in Western Tanzania. <u>Humanitarian Assistance</u>, Working Paper 11

Whitaker, B.E. 2002. "Refugees in Western Tanzania: The distribution of burdens and benefits among local hosts." *Journal of Refugee Studies* 15(4): 339-358

Wood, E. 2006. "The ethical challenges of field research in conflict zones." *Qualitative Sociology* 29(3): 373-386

Zheng, S., Z. Wang, and T.O. Awokuse. 2012. "Determinants of producers' participation in agricultural cooperatives: Evidence from Northern China." *Applied Economic Perspectives and Policy* 34(1): 167-186

Appendix A *Institutional Review Board Letter*

VirginiaTech
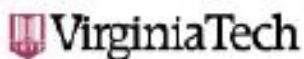
Office of Research Compliance
Institutional Review Board
2000 Kraft Drive, Suite 2000 (0497)
Blacksburg, VA 24060
540/231-4606 Fax 540/231-0959
email irb@vt.edu
website http://www.irb.vt.edu

MEMORANDUM

DATE: March 11, 2013

TO: John F Munsell, Elizabeth Anderson Moore

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)

PROTOCOL TITLE: Agroforestry Preferences, Arrangements and Procedures among refugees in Cameroon

IRB NUMBER: 12-378

Effective March 11, 2013, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the Continuing Review request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 6,7**
Protocol Approval Date: **April 9, 2013**
Protocol Expiration Date: **April 8, 2014**
Continuing Review Due Date*: **March 25, 2014**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

**FEDERALLY FUNDED RESEARCH REQUIREMENTS:**

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

—————————— *Invent the Future* ——————————

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

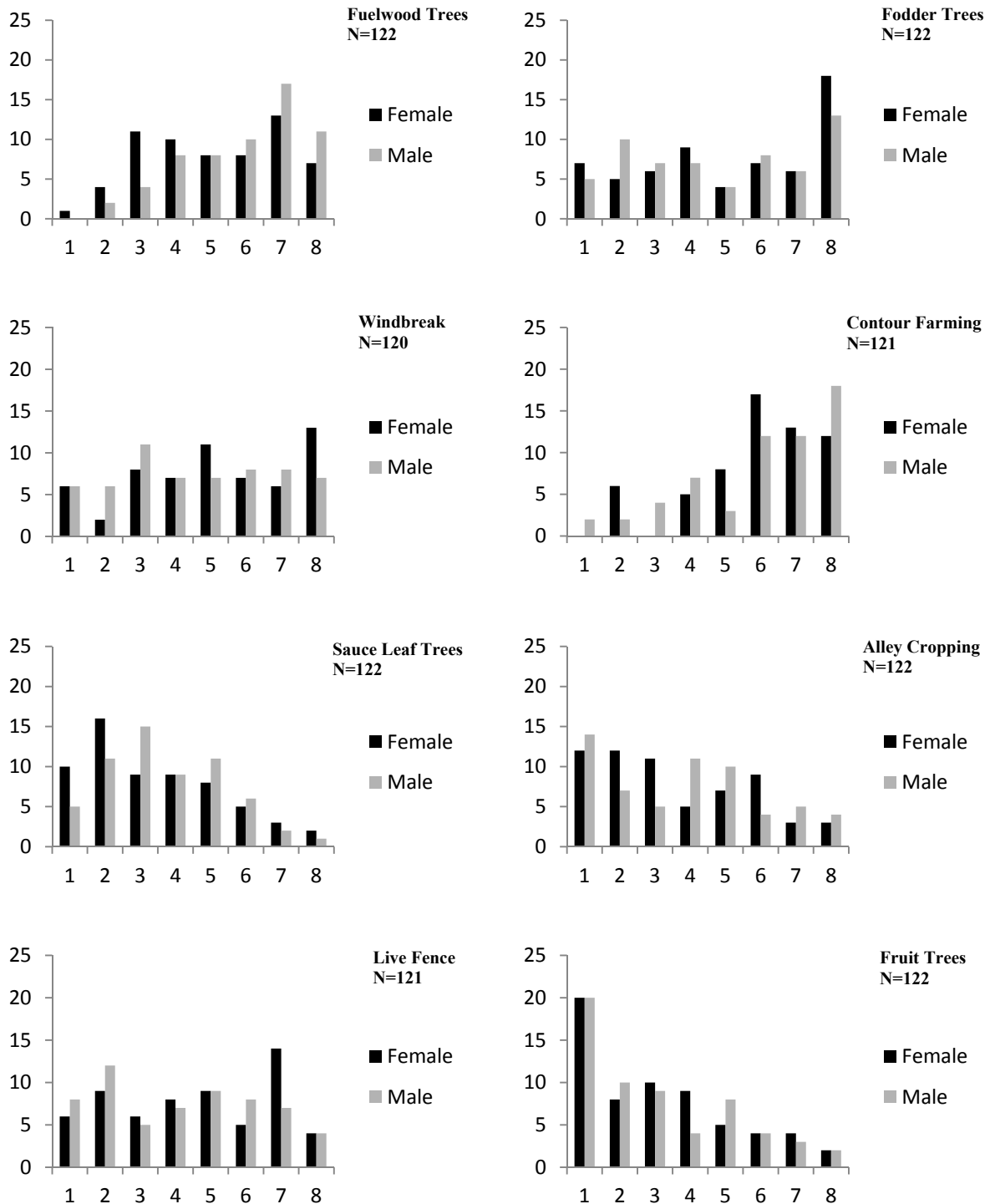# Appendix B *Frequencies of agroforestry practice rankings across status*
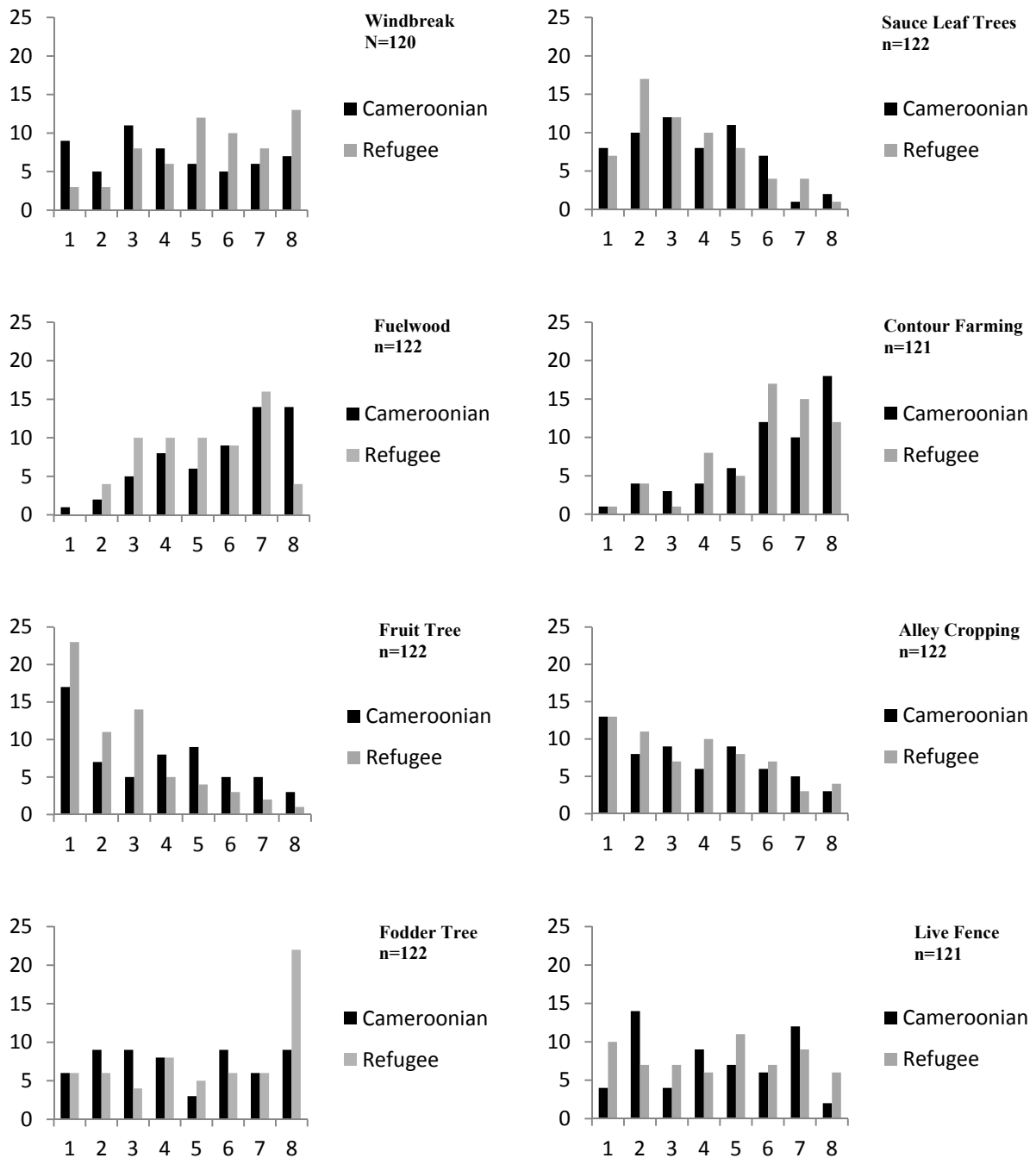
Figure A: Frequencies of agroforestry practice rankings for refugees and Cameroonians. They are ordered from top to bottom and left to right according to level of difference between the two groups.

Appendix C *Frequencies of agroforestry practice rankings across ethnicity*
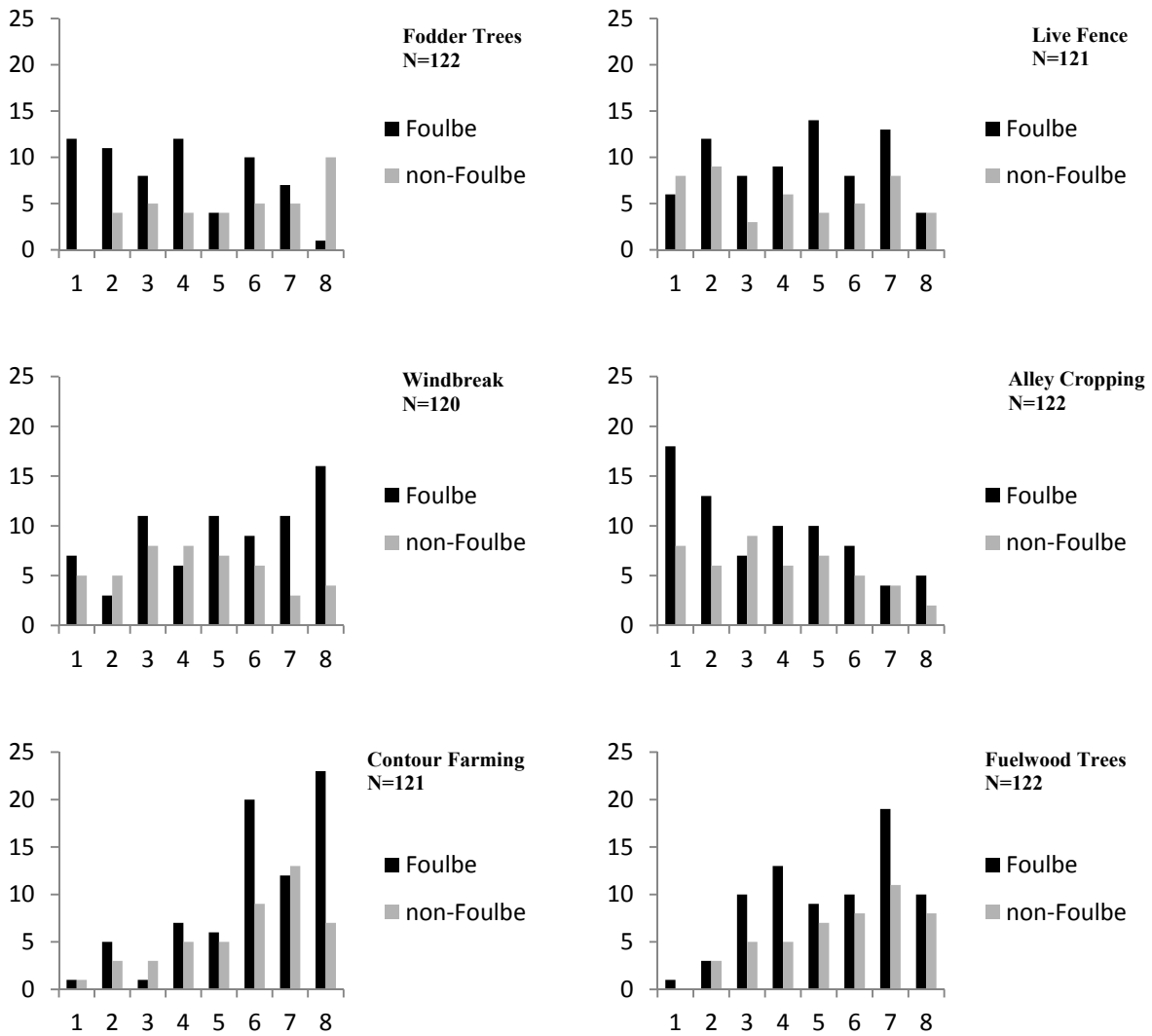
Figure B: Frequencies of agroforestry practice rankings between Foulbé and non-Foulbé ethnicities. They are ordered from top to bottom and left to right according to level of difference between the two groups.

Appendix D   *Frequencies of agroforestry practice rankings across gender*

Figure C: Frequencies of agroforestry practice ranking between females and males. They are ordered from top to bottom and left to right according to level of difference between the two groups.

Appendix E   *Example verbal explanations for low rankings of practices*

Irrelevant Practices

"I already have lots of mango trees!" (Fruit Trees)
"My fields already have a lot of fertility" (Alley Cropping)
"Wood is everywhere here." (Fuelwood)
"I don't have a field on a hill" (Contour Farming)

Useful but Low Prioritized Practices

"All of these are helpful. I would be happy with any of them"
"All are good, it's just that the previous ones were more attractive."
"This is good to, but the others will give profit earlier and faster."

Example verbal explanations of high rankings of agroforestry practices grouped by theme

Needs and Experience

"I have no husband now to buy it (leaves) for me." (Sauce Leaf Trees)
"I had animals enter my fields last year and they ate most of my harvest" (Live Fence)
"All the time we have problems with Mbororo (Foulbé pastoralists)." (Live Fence)
"It's too much suffering to go and get wood. You have to cross 2 rivers. It's too hard to go with my old mother." (Fuelwood)

Identity

"Because cows are what I have known since birth" (Fodder Trees)
"I am used to farming"
"I am a farmer" or *"ngeesa mi waδi"* (fields are what I have done/worked on)

Appendix F *Example explanations of choice for project implementation*

Explanations for Family Implementation

Personal profit	*"I want this for my manioc field."* (Alley Cropping) *"Wind blows down my corn."* (Windbreak) *"I want to plant this around my house."* (Windbreak) *"I prefer to do fodder trees as a household, because if there are too many people doing it, there will be too much in the market and I won't be able to sell mine."* (Fodder)
Ease of project implementation	*"This is not hard. I can do this with my children."* *"Even in 2-3 days you can finish this."* (Live Fence) *"Even alone I can do this."* (Alley Cropping)
Familiarity and trust	*"Other people from outside my house may not know about farming"* *"I'm used to planting corn with my family"* *"You taught your children yourself. They will work well for you."* *"We farm in the same way."* *"I know I will take care of the trees."* *"They (my family) are a guarantee."*
Challenges to working in a group	*"I worked with a group for 3 years and it never worked out. I never harvested much from it and people would not come to work."* *"In a group, if I don't go, they'll say I didn't show up and I'll get in trouble"* *"It is difficult to get people together"* *"If it's a group everyone else will want to harvest; better in my own garden"* *"You never know if it's a group and the fields are far away, if someone is going to pick it. If it is at your house you can monitor it and know that no one is picking it"* (Fruit Tree)
Geographical convenience	*"Plant it right outside the household. If it's far, it's harder to bring back home."* (Fuelwood) *"At the house, even if you need it at night, you can pick it; it's right there."* (Sauce Leaf) *"I can't work in a group because their fields are far away and it's too far for me to walk."*

Explanations for Choosing Group Implementation

Communal profit	*"So that everyone can have some"* *"To be good for us all"* *"Because it will help all of us, not just one of us"* *"Because if you do a big one (windbreak) everyone's fields are helped."*
Project complexity	*"That one is difficult. You need a lot of people."* *"This is big work. Too much for one person."* (Windbreak)
Access to labor	*"There are not enough people in the household to do this."* *"I have to do this in a group because the people in my household are hard-headed/lazy."*
Maximization of land cultivated, profit; minimization of time working	*"To do a bigger field of it."* *"To plant a lot of trees."* *"So we can do more and sell more."* *"If we make a lot the work will go by quickly."*

Group amenities	*"In a group, even if I am sick, the work will not stop."* *"If you're together in a group it (the work) will go; in the house people can just not show up but in a group they'll call you and you all go together."*
Knowledge transfer	*"They (assuming group, or possibly an NGO) will show you how to do it."* *"I can do it with my neighbors, because things eat his crops; I can show him how; we can all learn, do training."* *"People will have the knowledge you don't have."*

Appendix G *Identity survey Questions*

Superordinate Identity

1. Is it not acceptable or acceptable for refugees and Cameroonians to marry?
2. Cameroonians and refugees should or should not marry?
3. Is it acceptable or not acceptable for Cameroonians and Refugees to farm together in a field?
4. Should agriculture work include refugees and Cameroonians or not include them?
5. Is it acceptable or not acceptable to have one chief for refugees and Cameroonians together?
6. Should refugees and Cameroonians have their own different chiefs or not have different chiefs?
7. Is it acceptable or not acceptable for Cameroonians and refugees to go to the same school together?
8. Should Cameroonians and refugees have their own separate schools or one school?
9. Is it acceptable for refugees and Cameroonians to live in the same neighborhoods mixed or not?
10. Should refugees and Cameroonians have separate neighborhoods or not?

Subgroup Identity

11. In education, are refugee and Cameroonian traditions different or similar?
12. Do refugees and Cameroonians have similar or different needs for education?
13. In agriculture, are refugees and Cameroonian abilities different or similar?
14. Do refugees and Cameroonians have different or similar needs in agriculture?
15. In marriage, are Cameroonian and refugee traditions similar or different?
16. Do refugees and Cameroonians look for similar or different things when they choose who to marry?
17. In their way of making a decision, are Cameroonian chiefs and refugee chiefs are different or similar?
18. Do refugees and Cameroonians have similar or different traditions of chefferie (village leadership)?
19. In their organizations of homes, are refugees and Cameroonians similar or different?
20. Do refugees and Cameroonians have similar or different needs for running a household?

Appendix H *Example placements*

Community Garden-Separation

Personal Field-Isolation

Community Field-Collaboratively Paired