WHEN RIGHTS ARE RIGHTS TO GIVE: FARMER SEED GOVERNANCE AND EMERGING INTELLECTUAL PROPERTY LAW IN THE GAMBIA

by

SUSANNAH MARIE CHAPMAN

(Under the Direction of Virginia Nazarea)

ABSTRACT

In light of ongoing efforts to internationalize intellectual property law for crop varieties, there is a need to understand how farmers think about rights in seeds. Based on almost two years of archival and ethnographic research in The Gambia, I explore how farmers advance claims to seeds, how they understand varietal innovation, and how they carry out seed transactions. I argue that not unlike the model of personhood and labor advanced by intellectual property, the ways in which Gambian farmers understand the process of varietal innovation and the value of varietal exchange comes to bear on how they discuss rights to crop germplasm. Yet where intellectual property establishes a private right to exclude, farmers discussed rights to seeds as rights to give. Rights to give were both personal rights that returned reward to the giver, but they also were ways to build and meet relational obligations with others. The ways that farmers discuss claims to seed thus meanders the interstices of both individual and collective property.

Drawing on data collected through life history interviews, participant observation, and a "seed network analysis" I examine the history and transformation of productive and symbolic practices that have come to pattern current practices of varietal innovation, exchange and access.

I argue that the widespread adoption of Islam and the rise of gendered production practices have come to influence how farmers exchange seed and how they locate meaning in those exchanges.

Finally, I use both ethnographic and archival data to explore the relationship between the history of colonial germplasm collections and historic claims about global seed commons, particularly as these exchanges played out between farmers and colonial administrators in The Gambia. I argue that the differential recognition afforded to contributions of germplasm from Gambians and those from Europeans within the colonial Department of Agriculture helped produce very specific types of knowledge about farmers and "experts" and "free" and "unfree" gifts. This differential treatment framed early germplasm exchanges in a way that privileged European notions of reciprocity.

INDEX WORDS: property, The Gambia, seed management, intellectual property, colonialism

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DEDICATION

For all the farmers, all over the world, who save and steward crop diversity. For the people who pass excellent varieties on to others and for those who experiment with the not-so-great ones. For those who select out new varieties, care for them, and make them well-mannered. For the varieties themselves, who make everything more beautiful. And for jinns and genes, for making off-types possible.

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Chapter seven was originally presented as part of the panel Conservation and Coloniality organized by Anne-Marie Hanson at the 2013 Dimensions of Political Ecology Conference in Lexington Kentucky. The comments of panel discussant Paul Robbins helped me think through some of the issues related to colonial bureaucracies and the politics of expertise. Likewise, chapter four was first presented at the 2014 American Anthropological Association Meeting as part of the panel Seeds of Resistance/Seeds of Hope, and the comments and feedback of discussant Glen Stone pointed me towards thinking about how farmers in The Gambia do and do not recognize their own agency in the development of crop diversity. Melissa Walker also gave me early feedback on a draft of chapter seven. Her comments helped me frame the historical narrative I presented therein. Laura Tilghman and Elaina Lill have read and commented on different drafts of chapters four and seven. All errors, omissions, and inconsistencies are, of course, my own. Alston Chapman, graphic designer par exemplar, assisted with the layout of the figure charting Jenoi's agricultural cycle. Thanks big bro! Brandon Adams, of the University of Georgia Geography Department, made the maps. Thanks are also due to those at the University of Georgia Statistics Department, particularly Kim Love-Meyers and Lina Liao, who helped me

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CHAPTER 1

INTRODUCTION

…a culture dominated by ideas about property ownership can only imagine the absence of such ideas in specific ways –Marilyn Strathern, *The Gender of the Gift* 1988

There are rights to crop varieties between farmers. Let's say that you and other people are sitting together, and [that] you see the people around you have a particular variety. If your relatives come to you and they find that variety in your hand, and if they do not have it, then *it is your right to give* it to them. –Gambian farmer, 2011

If people don't like you, they won't give you seed. –Gambian farmer, 2011

In this dissertation I explore the ways that farmers in The Gambia articulate claims to crop varieties in light of emerging intellectual property law for plants. For many years, seeds have occupied both a real and symbolic space in contests over international environmental and economic governance. These contests have emerged alongside changes in the political economy of plant germplasm during the twentieth century, as the seed has become the site of novel forms of enclosure, regulation, resistance, and signification (Lewontin 1998; Boyle 2003; Kloppenburg 2004). These changes were partly due to a resurgence of corporate interest in the old practice of bioprospecting, bolstered by both the rise of the biosciences (Parry 2000) and the push for sustainable development (Escobar 1995) during the last decades of the twentieth century (see also Hayden 2003a; Greene 2004). With renewed interest in bioprospecting also came the internationalization of intellectual property rights under the World Trade Organization's (WTO) Trade Related Intellectual Property Rights Agreement (TRIPS) in 1995. The interests of U.S. industries left an indelible mark on the shape and scope of TRIPS, which established legally

binding minimum standards for patent, copyright, and trademark protection, including the protection of plant varieties, for all member states (Dutfield 2000).

Figure 1.1: Map of The Gambia. Map Credit: Brandon Adams.

Like many sub-Saharan African countries, The Gambia is in the process of reworking its existing intellectual property right laws to meet the minimum requirements for intellectual property protection set forth under the TRIPS agreement. Yet, the forms of property advanced under the aegis of the TRIPS agreement bring with them very specific ways of understanding labor, personhood, inventiveness, and rights that are often at odds with Gambian farmers own ways of being in this world. This dissertation is a study of the ways that farmers in The Gambia

approach the question of ownership of crop germplasm in light of emerging forms of seed governance. In the chapters that follow, I variously explore how farmers understand their own practices of varietal innovation, how they negotiate and attribute meaning to varietal exchange, how they envision rights to crop varieties, and how these practices have changed over the course of the twentieth century. In this sense, this dissertation is an exploration of other ways of thinking about creative labor and the process of *innovation*; *seed exchange* and the "freeness" of seed transactions; *rights* and the social relations that pattern *access* to plant germplasm; and rationales of *ownership* in debates over public, common, and private property.

Over the past thirty years, many of these themes have featured prominently in debates over intellectual property. *Innovation* under intellectual property is carried out by an individual or clearly delineated group of actors. Farmer *innovation* and experimentation, on the other hand, it is often represented as a "collective" endeavor, a foil to the recognition of individuated innovation under intellectual property (Brush 2007b; Salazar et al. 2007). Along these same lines, the freeness and openness of farmer *seed exchange*, in the past and the present, has served as both a testament to a historic commons and the "common human heritage" of plant and genetic resources, a powerful counter example to the exclusivity established by intellectual property rights (Brush 2007a; Roa-Rodríguez and van Dooren 2008; Halewood 2013). And if the *rights* created by intellectual property are exclusive and private, the rights of indigenous peoples quite often have been framed as "collective" and integral to "people's collective identity" (Daes 1997:3)

It is in this sense that intellectual property law—and responses to it—have often relied on the deployment of purified binaries to make both claims to property and claims against it (Strathern 1999). Marilyn Strathern (1999) has noted that in these discourses, societies and

persons are often split along a traditional-modern binary. Some of the common axes in these splits pit individual interests versus collective interests, commodity exchange versus reciprocity, companies and markets versus communities, and nation-states versus indigenous peoples. Such binaries have been and continue to be immensely powerful and immensely problematic: powerful because they define the contours along which the modes of inclusion and exclusion, public and private navigate (Hayden 2003b) and problematic because they often obscure the relationality of claims to ownership (to both tangible and intangible resources) and the ways that peoples negotiate these claims in diverse places (Strathern 2004). Thus what is at stake in the prescriptive use of these domains is the failure to recognize the diverse types of claims that traverse these binaries, ways of making claims which may or may not conform to classic models of the public domain, private property, or even the commons.

More recently scholars, many of whom are working within feminist and critical legal studies, have begun to give attention to the power inherent in the interplay of these binaries. They have begun to explore the ways in which intellectual property laws rely upon, for example, idioms of inventiveness, culture, and novelty—and their implied opposites—to legitimate the appropriation of "cultural forms" and give force to the claims of a few (Coombe 1998, 2003; Hayden 2003a, van Dooren 2008).[1] At the same time, recent work has pointed to the ways that intellectual property law and the discussions that unfold around it are also generative of "indigenous knowledge" as a uniform entity, one which is marked by collectivity, tradition, and authenticity (Anderson 2009; Foster 2012). Anderson has underscored that it is the generative capacity of legal, social, and political discussions that has enabled indigenous interests and

[1] My use of "cultural forms" comes from Coombe (2003: 288) and refers to all the diverse types of creations that fall under the purview of intellectual property, including various types of local knowledge.

practices to be classified—to some degree—as the same "despite vastly different social and cultural experiences, ontologies and epistemologies" (2009: 7).

In the chapters that follow, I explore Gambian farmers own ideas about innovation, exchange, and rights. More often than not, these dimensions of seed management are neither understood nor practiced by farmers in ways that correspond to any neat division between collective or individual innovation, gifts or commodities, free or unfree gifts, or private or collective rights. Instead, farmers' practices blur these categories, and they do so in ways that—if they do not make sense to the logic of intellectual property—they certainly make sense to the logics of Gambian farmers.

The central argument of this dissertation is threefold. First, I argue that farmers in Jarra West approach the question of property in seeds and crop varieties in ways that both overlap with and diverge from current theories of rights advanced under intellectual property. Not unlike the stories of inventiveness advanced by theories of intellectual property, for example, the ways that Gambian farmers conceptualize innovation come to bear on how they articulate rights to germplasm. Yet where intellectual property, through recourse to Lockean notions of labor and appropriation, establishes a right to exclude, farmers insisted that any right to germplasm is in fact a right to give. Like labor theories of property, in some sense the right to give arises from the recognition that a farmer's harvest is the product of her own labor, although, as I will discuss in chapters three and four, farmers never work entirely alone. Individual farmers bring in the harvest and help "bring out" new crop varieties with the help of many other human and non-human actors. It is in this sense that, to some extent, rights to give emerge out of the ongoing transactive relationships between humans and non-humans that are central to both varietal innovation and agricultural production.

Yet in another sense, rights to give are premised on the acknowledgement of immense interdependency between humans and the struggle for mutual recognition within the social world (Robbins 2006). This approach to property recalls Hegel's (2008) discussion of the tripartite relationship between possession, use, and alienation of property in the realization of personhood and the pursuit of a human community. In Jarra West, rights to seeds, framed as rights to give, bring personal rewards to those who give, exchange, and transact with others, but they are also reflective of a person's dues from and obligations to other members of society (Strathern 2004). Rights to give, in this context, might be understood as rights to fulfill and build social relationships: this includes building relationships for the sake of relationships (Sutton 2001) and building relationships as a way to ensure future access to resources (Berry 1993; Ribot and Peluso 2003). Gambian farmers in Jarra West are working with a very different notion of personhood, a very different sense of relationality (Mittermaier 2014a), and a very different sense of property (Hegel 2008) than the theory of labor-rights advanced under the possessive individualism of intellectual property (Macpherson 2011).

It should be noted that within intellectual property theory, the idea that inventors have a moral right to their work draws heavily on Hegelian theories of property to justify the creation of exclusive intellectual property rights in creative works (Fisher 2001). In part, this link stems from the idea that creative works embody some intrinsic aspect of the creator—her skills, personality, talents and abilities—and thus while their physical manifestation can be transferred to another for a period of time, the ultimate expression can never be fully alienated from the creator (Benhabib 2003). Under this reasoning, it is because the work is an expression of the creator and cannot be fully alienated that creators deserve legal protection via private property rights: retaining control over the creative expression—if not the physical object—is necessary for

the self-actualization of the creator, inventor, or author (Fisher 2001). Yet, in some sense, this reading of Hegel interprets his theory of rights within liberalism's ontologically narrow framework of negative freedom and possessive individualism. This is perhaps ironic, as Hegel was critical of liberalism's conceptualization of rights as that which existed outside of, and thus preceded the social, moral, ethical, and institutional dimensions of human existence (Salter 2003). Instead, Hegel sought to build a conception of rights that took into account the drive of individuals for social recognition and relational responsibilities to other members of society that arise in that process.

This detail of Hegel's argument is significant because it opens up alternatives to thinking about property, claims, and ownership as they have been conceived in Western models intellectual property law. For farmers in Jarra West, where the social recognition of moral personhood comes into being through exchange and whose discussion of "rights" carries a dual meaning that makes room for rights as "that which one should do for others," seed claims assume new meaning. What might appear as free and open exchange is part and parcel of making property socially effective, of seeking mutual recognition, and of "making one's name famous" for bringing out new crop varieties. What emerges, then, is a complex array of rights and responsibilities where acts of inclusion do not abolish property but rather help fulfill property relations (Carrier 1998; Hann 1998; Robbins 2006). This is significant for current debates over intellectual property because it quickly becomes clear that what is at issue is not a simple question of private rights versus public goods, individuated versus collective ownership, or even exclusivity versus inclusivity. Rather it is a way of thinking about property that both overlaps with and diverges from ways of conceptualizing creative labor and the claims that such labor entails.

The second argument of this dissertation is that current seed management practices cannot be understood without attention to how the institutions that mediate them have changed over time. Gendered differences in seed transactions are largely the result of changes in production practices that unfolded during the nineteenth and twentieth centuries. Islam has come to play an important role in how farmers interpret and locate meaning in seed transactions, and seed transaction practices that were common even seventy years ago are rare (if nonexistent) today. This is partly due to changing labor relationships, but it is also partly due to the ways that such transactions are interpreted within the moral economy of Islam. Attention to transformations in local practice is important because it underscores the historical contingencies of farmer seed management. Such recognition is particularly significant for how farmers and indigenous peoples' practices are represented under the law because of the law's tendency to deal with cultural difference through recourse to criteria of authenticity (Povinelli 2002; Anderson 2009). To ask questions about how farmers' contemporary claims to seeds and crop germplasm are constructed thus necessitates attention to the ways that local institutions have also been shaped by historical processes.

Finally, I contend that current debates over intellectual property and farmer seed management should be explored within the context of colonial encounters. While scholars have consistently pointed to the ways that intellectual property rights reproduce an epistemological bias reminiscent of colonialism (Escobar 1995; Castro-Gómez 2007; Quijano 2007), there is a need to rethink questions of exchange, representation, and recognition in light of the encounters between farmers and colonial officials that occurred in the contact zone (Pratt 2008). Colonial accounts of germplasm exchanges between European officers and Gambian farmers relied on a simultaneous recognition and denial of farmer skill and farmer contributions to early plant

breeding projects. Through the recognition of European contributions to plant breeding and the subsequent obfuscation of Gambian ones, the records of colonial germplasm transfers differentially framed the social relations of exchange: some "gifts" circulated in international germplasm transfers with recognition and praise, others circulated with none. I argue that the non/recognition of different gifts ultimately framed the economy of "free and open" germplasm exchange in very specific cultural terms, namely those set by colonial plant breeding projects and European notions of "free gifts."

Innovation, exchange, rights, and access are themes that run through all parts of this dissertation—from current practices, to historical transformations, to circulating narratives about what these terms mean in the first place. While the representation of farmer innovation as collective or farmer seed exchange as free has been a powerful counter-example to the exclusivity imposed under intellectual property, there is a need to critically reconsider the ways that terms like "free," "open," or "collective" reinterpret local meanings and practice within rationales of ownership dominated by Western understandings of property. The mere contentiousness of "free gift" within exchange theory alone should be caution to such statements (Derrida 1992; Cixous 1997; Laidlaw 2000; Sutton 2001; Venkatesan 2011). Although farmer seed management practices might fundamentally challenge Western notions of possessive individualism, as Brush (1998) has argued, references to "free" or "open" exchange, "collective" innovation, or "communal" rights must intimately examine what those ideas mean to farmers, on farmers' own terms, and in light of their own conceptions of property and personhood.

For this reason, there is a need for a better understanding as to how the deployment of terms like "free," "open," or "collective" justifies certain types of interventions. Ribot and Peluso (2003) have pointed to the power inherent in making claims about a "global commons" by noting

that the ability to frame discursive categories about property has helped shape certain types of resource access, thereby privileging some actors' agendas above others. Jack Kloppenburg was discussing this discursive power—especially when coupled with the forms of dispossession enabled through intellectual property—when he wrote that "plant genetic resources leave the periphery as the common—and costless—heritage of mankind, and return as a commodity—private property with exchange value" (2004:169). At the same time, Ikechi Mgbeoji has shown that claims about any "global commons" do not reflect the historic treatment of plant genetic resources by colonial powers. Rather, he argues that the "asymmetrical transfer of germ plasm from the colony to the mother country was more or less perceived as 'an internal affair' of the colonial empires" (2003: 824). Here, historical analysis of germplasm transfers calls into question the existence of inter-state treatment of germplasm as "common heritage" and points to the problems inherent in "scaling up" supposed "free" exchanges between farmers to international policy.

It is my hope that attention to the shifting meanings of innovation, exchange, and rights will provide a route through which unconventional properties and unexpected claims might be considered. I think that in dealing with something like seeds and crop varieties, conventional assumptions about what property is, and what it looks like, will be inapplicable to the realities of many farmers. As the legal scholar Carol Rose has noted, in the Western legal system "certain property claims do not make it onto our property radar screen, or appear only dimly there. At best this pattern creates an imbalance in favor of the kinds of claims that we do recognize, what at worst it may foster violence and dissipate wealth" (1998: 143). This is not to say that in the seeming absence of anything that looks like property within Western legal convention, farmers do not recognize and continuously negotiate access to important resources through what they

understand to be legitimate rights. These rights might be rights to things, but they very well also might be rights to act in certain ways in relation to other members of society. As many farmers in Jarra West explained to me: rights to seeds are less about rights to specific things than they are about rights to give among certain members of society. One farmer's admission that "if people don't like you, they will not give you seed" underscores the malleability of these relations and the contingencies of "obligations to include." Long-term inclusion requires something more than just existing, and it is made possible through certain types of ongoing social action.

A Note on Labor, Work, and Action

Action is a theme that runs throughout much of this dissertation (Graeber 2001).[2] It would be impossible to discuss the ways that farmers described practices of innovation, exchange, or access without talking about work, action, and the meanings that people attribute to it. When discussing varietal innovation, for example, farmers point to the many different human and non-human actors whose work, effort, and gifts help "bring out," "organize," and "steward" new crop varieties. Likewise, acts of seed exchange, among other types of exchange, foster existing relationships and help build new ones, ever meandering the interstices between kin and fictive kin, friends and strangers. Such work also helps construct the moral personhood of those involved: to be one who possesses *baraka* (divine grace), a state of being that the Imam of Jenoi described as "being rich in goodness," implies both a dedication to work and a certain degree of

[2] Graeber used the term "creative action" rather than work in his discussion of anthropological theories of exchange and value because of the association between the terms "labor" and "work" and the labor theory of value. He noted two major dilemmas posed by the idea of "work" or "labor"—namely that 1) the idea of work is by no means a cultural universal and 2) often "work", as invoked in the labor theory of value, assume that workers have some natural right in the products of their own labor. This latter critique of the narrowness of work he borrows from Strathern (1988). In my discussion I use work and labor as subsets of "creative action."

generosity, thoughtfulness, and sociability.[3] Creative labor or action, in this sense, encompasses various aspects of agricultural labor as well as broadly construed notions of good deeds and social blessedness.

Justifications for property and intellectual property within the Western legal tradition rely heavily on culturally contingent conceptions of work: what work is, what it produces, and what it entails for (certain) workers. Lockean justifications for intellectual property, for example, hold that a person who mixes her labor with resources held in common has a justifiable property right in the fruits of that labor (Rose 1998). Personality theories of intellectual property, on the other hand, based on the philosophical traditions of Kant and Hegel, hold that an inventor or author possesses natural property rights in her expressions because such works are in some ways expressions of the "will" of the author. Even more strictly utilitarian justifications for intellectual property—that the promise of exclusive private rights will incentivize innovation—rely on an implicit theory of work (Fisher 2001; Coombe & Turcotte 2012). Work underlies justifications of intellectual property within Western legal traditions—it is at once the productive undertaking that legitimates property claims, which needs to be incentivized through private property rights, and an expression of the human self. My exploration of "other ways of knowing" and "other ways of owning" within the context of Gambian farmers' practices of seed management necessitates a consideration of "other ways of thinking about creative labor."

When I began fieldwork, I had no idea that participant observation would enroll me into the very seed exchange relationships that I hoped to study. In many ways, it was because of the meaning of the work that participant observation entailed that I was gifted seed, which I in turn

[3] I discuss this topic more in chapter 3. From Arabic, *baraka* is a concept in Islam that has been variously defined as "grace" (Buggenhagen 2011, in Senegal), "divine grace" (Bop 2005, Senegal) and "blessing" (Denffer 1976, North and West Africa).

gifted to others. As it turns out, this was one of the only ways that I was ever able to observe gifts and exchanges of seed. The rest of my understanding on this subject, for the most part, came from the narratives about gifts, exchanges, sales, and loans of seed that farmers recounted to me during seed network interviews—narratives that perhaps told me more about the importance and power of talking about exchange (Munn 1986; Sutton 2001) than they did about actual exchanges.

On the day that my research assistant, Kajally Samura, and I accompanied my friend Fatou to her rice paddies, her two youngest sons tagged along. Fatou's sons, Ebi and Foday, were following along for the thrill that only the promise of deep mud, salty swamp water, and the opportunity to splash through it can hold for young children. By contrast, Kajally and I were following Fatou to one of the four rice fields that she was working that season to help her harvest an early-ripening rice variety called *latake*. *Latake* had recently arrived in Jenoi, the northernmost village in Jarra West (Figure 1.2), through extended farmer networks and had quickly become one of the rice varieties widely sought by women. In fact, among the 55 women surveyed in Jenoi, *latake* was the most widely planted rice variety. Affectionately named *latake* ("falling over") because of its tendency to lodge, it was nonetheless widely prized by women for its beauty, its productivity even in poor, depleted soil (what women called an "old earth rice"), and its tendency to produce large stems on both primary and secondary tillers, a characteristic that makes women's rice harvest much easier.[4] Throughout The Gambia, women tend to harvest rice by using a small knife to cut one panicle at a time, breaking each stem or tiller

[4] Farmers' almost unanimous love for *latake* underscores the diversity of criteria that women use to evaluate different rice varieties. Contrary to the emphasis placed on high-yielding, semi-dwarfing varieties in early Green Revolution rice breeding programs, farmers in Jenoi embraced *latake* despite its tendency to lodge. As Nazarea (1998) has pointed out, the multiple, fuzzy criteria that farmers use to decide which varieties to cultivate often belies the quest for prototypical varieties that meet idealized agronomic or functional standards.

approximately 20-25 cm below the base of the panicle. One "handful" of these panicles is called a *farandaŋo*. When the girth of tillers is small, it takes a very long time to make one *farandaŋo*, and women's hands will become tired. Larger stems—like those *latake* possess even when dry—make filling one *farandaŋo* much easier. As women would say, "having a fat stem makes harvest *sweet*."

Figure 1.2: Map of Jarra West, the primary research area. Most time was spent in the village of Jenoi. Map Credit: Brandon Adams.

In Jenoi, women combine roughly four *farandaŋo* into one *maanibuloo*, or "rice hand".[5] The *maanibuloo* is then tied together with a single rice tiller that is cut much longer than all the rest. *Maanibuloo* are the principle way that women organized and measured rice: six *maanibuloo* makes one *mùta*, and ten *mùta* is called a *sinsiŋo*. If you ask a woman how much rice she harvested in a particular plot, for example, she might say: *sinsiŋ kiliŋ, mùta sabaa, maanibulu lulu, aniŋ farandaŋ kiliŋ* (one *sinsiŋo*, three *mùta*, five *maanibuloo*, and one *farandaŋo*). This counting system is key to the ways that women make gifts of rice and seed. Every year one *mùta* out of every *sinsiŋo* is supposed to go to charity for the annual tithing or *zakat* that is required under Islam. When going to a naming ceremony or a wedding, women might take one or more *maanibuloo* as a gift for the new mother or the bride. And, when exchanging or gifting rice seed to others, one of the principle units of exchange between women is the *maanibuloo*.

Table 1.1: Women's Rice Measurements

Mandinka	**Equivalent**
farandaŋo	1 handful
maanibuloo	4 handfuls or 1 bundle
mùta	6 bundles
sinsiŋo	10 *mùta* or 60 bundles
sinsiŋo niŋ sadaa bondi	9 *mùta* or 54 bundles

On that day, Fatou did not want to stay long in the swamp: she only wanted to work long enough to harvest two *maanibuloo*, which she would dry in the sun that afternoon and pound the next day for her family's lunch. Much of her *latake* was also not entirely ripe, a piecemeal approach to early harvest that signified the household had eaten through their stocks of both commercial rice and last year's harvest. When we arrived at her field, Kajally and I briefly

[5] The number of *farandaŋo* combined into a single *maanibuloo* varies from region to region. In some places, as in Baddibu, women might combine five *farandaŋo* into one *maanibuloo*. In other places, as in Niamina, women combine three *farandaŋo* into one *maanibuloo*.

measured and mapped her *latake* paddy and another nearby paddy that she had planted with the varieties *sipa meseŋo* ("small shrimp") and *Meeji wuleŋo* ("red Major"). Afterwards, we picked up our knives and began to help with harvest. While we had taken part in many other agricultural tasks throughout the farming season, many women received the idea incredulously. It was quite obvious that I had no extensive experience with working rice, but my research assistant, a young man from Jenoi, also had very little experience with women's methods for rice harvest (*maani katoo*). Although Gambian men assist with transplanting rice in the swamps and, occasionally, with harvesting rice *en masse* with a sickle (*maani káaroo*), they almost never assist with *maani katoo*, claiming, instead, that "they don't know how to do it."

On that day, we spent barely an hour in the field. As we were packing up to leave, Fatou tied up the two *maanibuloo* that she had come to harvest. She also tied up a third, and she handed it to me. As kindly as I could, I protested. We had cut very little rice, and all I could think of was all of the work that had gone into the *maanibuloo* that she wanted to give us. Kajally and I certainly had not done enough to warrant such a gift. She said, as many women would say that season, "take it and make *dempeteŋo*."[6] With that, my protest was over.

Dempeteŋo is a special treat made with new rice. While the rice is still in the hull, it is soaked in water until the grain swells. It is then dry roasted in a kettle until it pops, after which it is pounded, and the grains are separated from the hulls. *Dempeteŋo* is a favorite food around harvest season, when it is prepared and eaten as a snack with sugar. People will gather and prepare it together. Mothers will make it and send it to their children who live away from home. In designating her gift as *dempeteŋo*, Fatou had shifted its consequence. *Dempeteŋo* is a special

[6] "*A taa, i ye dempeteŋo tabi."*

Figure 1.3: Fatou and Kajally harvesting *latake*.

treat, but it is just that: a snack, something to share with others, sometimes only by the handful, as little kids line up with their hands cupped to cradle the crispy rice flakes. It was a generous gift—I took away with me a third of her day's harvest, after all. But, if Fatou recognized my own struggles with equivalencies, she deflected them well with her suggestion that I make *dempeteŋo*.

That *maanibuloo* never became *dempeteŋo*. After returning to the village, Kajally and I went straight to the compound where I lived. We wanted to leave the rice before going to our next interview. As we entered the gate of Jah Kunda, my host mother caught sight of the *maanibuloo*. Her eyes widened. She said, "Is that *latake*?"

"Yes," I said.

Almost without listening to my response, she stated, "I want *latake* for next year! I will give it to the griots. It will be *jalimaanoo*."[7] *Jalimaanoo* literally means "griot rice," a term that people will sometimes use to refer to their seedstocks. Griots, or *jaloolu*, are members of largely endogamous lineages who, traditionally, are the bards, musicians, genealogists, and historians of Mandinka and, broadly, Mande society (Conrad & Frank 1995). Even today, griots can demand that other farmers—typically those of "noble" or "freeborn" decent—supply them with seed at planting time. One griot woman in Jenoi had received almost all of her rice seed in that manner for both the 2009 and 2010 planting seasons. It is for this reason that sometimes, even when not intended for griots, women refer to the rice seed that they keep for next year's planting as griot rice. Fanta, my host mother, wanted the *maanibuloo* for seed. She had mentioned to me two days earlier that she had wanted to plant *latake* that season, but was not able to procure seed from other women in the village, as it was a relatively new variety and in high demand.

I looked at Kajally. He was smiling but he also looked a bit disappointed: the *dempeteŋo* would have to wait. I handed the *maanibuloo* to Fanta, and she said, giving a prayerful wish to the rice variety, "may Allah give it a long life."[8] And in that short interchange, what would have been our snack became Fanta's seed for next year's planting.

Throughout the rest of the season, I was often gifted rice bundles or brimming bags of groundnuts when I visited farmers' fields. For me this constituted a constant reeducation in the

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[7] "*Wo mu latake le ti baŋ? N lafita latake la puru jari. N be a dii la jaloolu la. A mu jali maanoo le ti."* Historically, there has been a deeply interdependent relationship between griots and other members of society, griots serving as social historians and leaders of various ceremonies. To this day, payment is expected when griots perform at ceremonies or recite family histories. Most often, payment is rendered in cash, but other important items such as cloth or kola nuts might be given as payment as well. Griots can sometimes demand items without giving a performance, but today this is rare. However, griots as well as other members of hereditary artisan groups such as smiths and leather workers, can, in theory, demand *jalimaanoo* whenever they want.

[8] "*Allah maa ye a soo siimaayaa la*."

ethics of gifting, exchange, and even buying, made more poignant because I was a stranger and also because my own expectations about giving, working, exchanging, taking, and (re)giving were perpetually challenged and checked. My own shortcomings on this matter were sometimes kindly explained to me by many of my friends in the village.

One of my neighbors, a groundnut and millet farmer, Baa Ansu Jassey, captured it well when, at the end of an interview about seed exchange I asked him if he had any other questions for me. He said, "Yes, I do. First, you know that we all went to my groundnut farm [to work]. When [ever] we go, you should agree to let me give you some of the groundnuts, but you never like that."

"*Eey*, Baa Ansu," I said, "That is fine with me, but when I went to your farm you gave me a lot of groundnuts." (He had given me a large plastic grocery bag full of groundnuts.)

"Yes, but that was not many," he said.

"I *thought* it was a large amount of groundnuts," I explained. "It took me many weeks to finish what you gave me."

Baa Ansu looked at me, a bit exasperated. He said, "when you go to work on other people's farms, you have *baraajoo* (reward from Allah) there. You have *barakoo* (grace, blessedness) there. You should let the people you help also seek *baraajoo* and *barakoo* when they gift you part of the day's harvest."

Throughout the harvest season, Kajally and I amassed *maanibuloo* of over a dozen different rice varieties. We threw each new *maanibuloo* on the roof of my house so that it could dry in the sun and be safe from rat predation, a temporary seed storage method not uncommon during the dry harvest season. One day a neighbor passed through Jah Kunda on her way to the

Figure 1.4: A sampling of the rice varieties gifted in the 2010 season. From the left: *trakitor nukuro*, *manifiŋ meseŋo*, *nukuro*, *kawuro*, *Sherifu maanoo*, *kasi koŋo*, *latake*.

market. In my rooftop pile, she spotted a bundle of *kawuro*, another variety that had only recently arrived in Jenoi through extended farmer networks. She wanted the variety and asked me if I would give it to her in exchange for another variety she already had. I told her I would have to ask Fanta. She said "yoo," in affirmation. Indeed, Fanta had informed me that she wanted many of the varieties that were piled atop the roof of my house. In the end, Fanta got the *kawuro* and a number of the other varieties. As my landlord and the person whom others increasingly referred to as my mother, it made sense to people that Fanta could claim my *maanibuloo*, intended for *dempeteŋo* or some other treat, for her next year's *jalimaanoo*. And, in many ways, I should have given this seed to her: it was my right to do so.

In the rest of this chapter I review the literature that has dealt with questions of intellectual property. First, I provide a bit of background to this literature by tracing some of the major transformations in the political economy of crop germplasm during the twentieth century and the conversations that emerged around these changes. The 1990s witnessed a proliferation of commentary and research on the question of indigenous peoples and farmers' rights within this new political economy. This literature celebrated the work of farmers and indigenous peoples in conserving and fostering biodiversity. As a strategy for writing against intellectual property, scholars pointed to peoples' complex knowledge of agricultural and non-cultivated environments, the ways in which such environments were managed, and especially, how such management practices were in fundamental opposition to the epistemology of intellectual property. This work challenged models of property put forth under intellectual property at the same time that it raised a number of questions about the representation of "culture" and the generification of difference.

Second, I highlight two emerging approaches to the study of intellectual property that have shifted anthropological conversations about appropriation, bioprospecting, indigenous knowledge, privatization, and the public domain. The first approach includes the growing body of research from feminist and/or critical legal perspectives that has started to give attention to the study of intellectual property as a cultural phenomenon, thereby raising questions about the politics of translation and the circulation/production of meaning both within the law and in contests over new legal entities. Related to this is the recent turn in intellectual property studies toward theorizing the proliferation and transformation of these novel forms of property as part of the second enclosure movement. Research within this second thread has provided a route of entry into rethinking the public-private dichotomy that was sometimes reified in earlier

commentaries on intellectual property rights at the same time that it has situated emerging intellectual property right law within the history of capitalism and privatization. Questions remain, nonetheless, as to how pointing out that intellectual property subject matters are sometimes managed as diverse commons arrangements both reproduces romantic notions of the public domain/open commons and translates local claims that may only fit awkwardly into current permutations of the Western property grid.

History and Politics of Plant Germplasm

Over the past five hundred years, seeds and plant germplasm have been central to colonial and state projects in Africa and elsewhere. Historically, the expansion of British colonial power relied heavily upon both the budding science of natural history and the emergent field of economic botany, fields of inquiry that both facilitated the extension of British mercantilism and served as a basis upon which European authority was legitimated (Pratt 2008; Goonatilake 1998). Seeds and germplasm were classified, collected and exchanged within, and to a lesser extent between, the colonial holdings of different European powers (Brockway 1979; Mgbeoji 2003). These practices of bioprospecting undergirded the development of colonial plant breeding programs, as nascent colonial agricultural departments depended on both the collection of local germplasm from farmers and the transfer of germplasm from other parts of the world for plant trials and varietal development. The Gambia was both a recipient of and a contributor to germplasm exchanges within the British Empire. Within the colonial Department of Agriculture, groundnuts, the primary cash crop of The Gambia both then and now, became the object varietal trials and varietal improvement (see chapter 7).

The late twentieth century saw renewed interest in the practice of bioprospecting, this time as a favored strategy through which the agricultural and pharmaceutical industries sought out biological materials for product development (Parry 2000). Many of these biological materials were now being collected within a political economy that afforded unprecedented means of concentration and control, facilitated through the internationalization of intellectual property rights in the 1990s under the TRIPS agreement (Dutfield 2000). The result was a political economy that possessed what Ikechi Mgbeoji has called an "enormous asymmetry" in the way that intellectual property recognized and protected the creative labor and innovations that hailed from the industrial world, while these new legal mechanisms simultaneously ignored—and at worst appropriated—the innovations of peoples across the Global South (2006: 11).

Concerns over intellectual property became a major rallying point around which farmers' groups and indigenous activists mobilized (Brush 1993; Brosius 2006; Dove 2006). Central to some of these emerging contests was the strategic deployment of claims to indigenous intellectual property and cultural property, often advanced by indigenous rights activists themselves (Brown 2003; Greene 2004). As indigenous knowledge became part of international agendas and the focus of development practice (Sillitoe 1998), indigenous and farmers groups organized internationally to demand just compensation for the use of their knowledge and resources (Posey 1990).

The coming-into-force of the Convention on Biological Diversity (CBD) in 1993 in many ways was a response to perceived inequities in the current international exchange and use of plant and other biological materials (Fowler 2013). The CBD declared state sovereignty over biological resources and set forth standards for prior informed consent and the sharing of benefits

arising from the use of biological resources (CBD 1993). Yet from the outset, the CBD has not been applicable to most agricultural collections found in gene banks today. In 1994, the Food and Agriculture Organization (FAO) initiated discussions on the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR-FA). The treaty—which finally came into force in 2004—established a multilateral system for the transfer of germplasm for specific crop species, and it created a benefit sharing system whereby monetary payments would be paid into a farmer fund when materials in the system are used in the breeding of a commercial cultivar protected by intellectual property (Fowler 2013).

Following on the coattails of the CBD and the initiation of the ITPRG-FA, however, was the TRIPS agreement. What set TRIPS apart from earlier international intellectual property agreements, such as the International Convention for the Protection of New Varieties of Plants (UPOV), was that it had unprecedented geographic scope (binding to all WTO member states) and it established repercussions for states who failed to comply with its terms (Dutfield 2000). By establishing minimum standards for intellectual property protection for plant varieties via patents, an "effective" sui generis alternative, or a combination of the two, the TRIPS agreement internationalized a very specific way of dealing with property in crop varieties. Within these new legal environments, intellectual property harmonization has raised questions about both the expropriation of others' property and the reorganization of the ways that farmers use, save and exchange seed of protected varieties.

Debates over Knowledge, Rights, and Property

Alongside these changes a number of questions emerged about the rights of indigenous peoples and farmers within this new political economy (Posey 1990; Brush 1993, 1996a, 1996b, 1998;

Brush and Stabinsky 1996; Greaves 1994; Posey and Dutfield 1996; Cleveland and Murray 1997; Dutfield 2000), the applicability of intellectual property models to indigenous people's and farmers' knowledge (Brush 1994; Gudeman 1996; Oguamanam 2006), and the possibility of invoking other types of non-IP rights deemed more suitable to different cultural practices (Greaves 1996). Responses to this matter were varied. Darrell Posey (1990) was one of the first scholar-activists to suggest the implementation of a form of indigenous intellectual property. At the same time, however, others countered that intellectual property rights were epistemologically incompatible with the practices and beliefs of many indigenous and farming peoples (Greaves 1994; Brush and Stabinsky 1996). To this end, scholars, policy makers, and activists alike sought to imagine alternative mechanisms, such as traditional resource rights (Posey and Dutfield 1996), that might recognize indigenous peoples and farmers' rights without reproducing the narrow interpretation of property advanced under intellectual property. Some alternatives, for example, were to explore strategies that might locate farmers' and indigenous peoples' rights in various types of cultural, human, and environmental rights (Chapman 1994; Cleveland and Murray 1997; Dutfield 2000). Others proposed models of protection similar to those used for copyright in computer software (Stevenson 1994), a way to grant rights in knowledge even after it had been transformed through subsequent users.

All of these concerns were made more poignant by the way intellectual property seemingly drew upon the inventiveness and creativity of farmers and indigenous peoples at the same time that it ignored local practices of property and resource management. In response, scholars and activists began to point to the various ways that "wild" resources are in fact cultural products (Brush 1996b) and the ways that farmers are actively engaged in the selection, maintenance, and creation of crop diversity (Richards 1985, 1996a; Brush 1993). In other cases,

scholars pointed to the ways that the medicinal products sought during bioprospecting initiatives were managed locally as collective resources (Nijar and Ling 1994; Calle 1996; Nigh 2002). In the case of seeds and crop germplasm, the counter to privatization under intellectual property was that seeds and crop germplasm, in their properties as resources, in their management by farmers throughout human history, and in their potential benefit to mankind, constituted public goods and thus should be considered as part of "common human heritage" (Brush 1993, 1996a, 1999; 2007a).[9]

Intellectual Property and the Politics of Translation

Running through many of these discussions were a number of uneasy binaries that set the world of intellectual property against the world of those without it. Here, market economies were set against community economies, the former marked by rewards for individuated innovation, the latter marked by "innovations [that] are cultural properties in the sense that they are the product and property of a group" (Gudeman 1996). Indigenous knowledge, framed as "collective knowledge….assembled by past generations and passed down to its present inheritors" (Greaves 1996: 26) took center stage against the rights granted to individuated inventors. Meanwhile, seeds were part of "common human heritage," only recently enclosed through intellectual property and the passage of the CBD (Brush 1996b). To support this claim, some argued, one

[9] Brush's argument for treating seeds as public goods was based on how they have been exchanged and accessed by farmers and plant breeders throughout human history. To clarify, he wrote that to "assume that crop genetic resources are common heritage or public goods because they have not been specifically excluded from the public domain and fail to meet the existing criteria for excluding plant materials (e.g. novelty, nonobvious process of invention, stability, and uniformity)…is based on the political and cultural hubris that Western criteria should be extended broadly and that a public domain exists between nation-states as well as within them….Nevertheless, it [the public good qualities of seeds] is also based on the fact that crop genetic resources were customarily managed as public goods, at least until the CBD's negotiations." (1999: 542).

need only look to the freeness of farmer seed exchange or the worldwide germplasm flows prior to the 1970s.

Although much of this work invoked what Marilyn Strathern has called "apparent axiomatic polarities" by situating the "technology" of intellectual property against the "community" of indigenous and farming others (1999: 186-187), Rosemary Coombe has suggested that this body of literature might also be understood as necessary, important, and "calculated interventions in a large dialogue about social justice" (Coombe 2003: 302). I agree with Coombe; much of this work sought to deconstruct, and thereby challenge, intellectual property for its own cultural myopia. Yet both Coombe (2003) and Strathern (1999) have noted that such binaries also raise a whole host of other questions about the representation of "culture" in general and representations of farming and indigenous peoples in particular. Along these lines, other scholars have given increased attention to the ways that intellectual property and international contests over intellectual property translate knowledges and practices across various scales (Strathern 1999; van Dooren 2008; Noble 2007; Anderson 2009; Foster 2012).

Practices of translation have taken on new consequence amidst international efforts to harmonize intellectual property law across jurisdictions, particularly in light of recent attempts to identify "traditional" knowledge and resource management practices that are commensurate with models of property established under intellectual property law. Writing of the World Intellectual Property Organization's (WIPO) Fact Finding Missions to identify intellectual property-like norms amongst "traditional" knowledge holders, Noble (2007) showed that WIPO's attempts at translation extracted transaction practices from the very social and value relations through which they gained meaning. Instead, only those dimensions of local practice that resemble intellectual property rights were rendered visible, while practices that diverged from simple parallels with

intellectual property were edited out. In these instances, deeply embedded social and cultural norms were stripped of their context, rendered meaningful only in so far as they mirror intellectual property rights, and made more accessible to the legal norms of international law.

Strathern (1999) argued that wrapped up in all of this is a process central to Latour's (1993) "modern constitution"—wherein practices of purification produce polarized categories (such as "nature" and "culture") that are only rendered commensurate again through translation. While the production and deployment of binaries was a central component of colonialism and the production of knowledge about colonized peoples (Mudimbe 1988), now such binaries emerge in the quest for justice within the changing world of intellectual property. Reminiscent of the divide between indigenous knowledge and Western science that emerged in calls for sustainable development (Agrawal 1995), the binaries that circulate in discussions of indigeniety and intellectual property recall Anna Tsing's discussion of "dematerialized aestheticism" and "deaestheticized materialism" (2003: 27). The former reaffirms urban notions of romanticized and backward rural peoples, while the latter "overgeneralizes from familiar cultural values and then pretends those values do not exist" (2003: 27). In the case of WIPO's Fact Finding Mission, peoples and their forms of knowledge were reified as "traditional" at the same time that some aspects of their culturally embedded transaction practices were identified, isolated, and enveloped into the practices of intellectual property. In such attempts at harmonization, "[traditional knowledge] is first polarized against modern knowledge and then enrolled into the latter's domain" (Noble 2007:342).

In much of the work written in opposition to intellectual property regimes, the same processes of purification emerge, producing seemingly natural polarities that serve as starting points for arguments against intellectual property (Strathern 1999). These binaries run through

contests over bioprospecting and emerging properties, permeating how researchers, anthropologists, and the broader public alike approach questions of private property and the public domain (Hayden 2003a, 2003b; Aistara 2012). The production and circulation of such binaries always has very real consequences for how the lines of inclusion and exclusion are drawn and the ways that various actors are defined under the law. Along these lines, Jane Anderson (2009) has traced the ways that both legal negotiation over intellectual property and the conversations that people have about the law are wrought with dilemmas of translation and representation. This raises serious questions for the rights of indigenous peoples and farmers, she argued, particularly when their ability to advance claims under the law relies on meeting legal and social expectations of adherence to one end of a binary, such as "community," "collectivity," or "tradition."

In the ways that intellectual property makes the cut between discovery and invention, nature and culture, innovators and non-innovators, it has come to define both what counts as property and who can make claims to property under the law (Sherman and Bently 1999; Hayden 2003a; Coombe 2003; van Dooren 2008; Foster 2012). This is because intellectual property—in how it distinguishes between invention and nature or innovators and mere distributors of goods—ultimately favors the property claims of certain actors over others (Coombe 2003). This "politics of authorship," as Rosemary Coombe (1998, 2003) calls it, is intimately wrapped up with the deployment of binaries, as diverse practices are translated into (or out of) the domains of intellectual property, where some forms of knowledge, labor, and creativity are deemed "cultural" enough to warrant protection while others are not (van Dooren 2008; Foster 2012). Situating the question of authorship and inventorship within the politics of translation has brought attention to how intellectual property harmonization privileges certain ways of being in

this world and certain ways imagining the nature of ownership over others. As such, it has also brought attention to the diverse processes that make and shape different fields of property (Hayden 2003a; Aistara 2012; Foster 2012).

Much of this work points to the coloniality of intellectual property. Under intellectual property law, and patent law in particular, the intersection of knowledge-inventiveness-appropriation that is used to justify the property claims of some actors over others emerges from very specific "Western-centric" notions of nature, culture, and, in effect, creative labor. Within Lockean visions of property, the ability to render some people closer to nature, some knowledge less abstract, and some labor less creative has been a powerful tool for discrediting the ownership and rights claims of the "other" (Coombe 2003; Chander and Sunder 2004; Roa-Rodríguez and van Dooren 2008). Likewise, the ability to render certain types of exchange "free" or "open" has been a powerful tool for naturalizing unequal relations of power, privileging certain visions of economy, and defining the parameters of property (Hayden 2003a, 2003b). The cultural bias in these discourses has enabled current plant governance regimes to relegate much of the creative labor of farmers and indigenous peoples to the domain of the raw, unrefined, or uninventive (van Dooren 2008). Santiago Castro-Gómez (2007) has pointed out that when recognition is given to non-occidental knowledges within the current system governing the use of germplasm, it tends to be practical rather than epistemological. This epistemological bias is what Arturo Escobar (1995) has termed the "semiotic conquest," whereby deeply cultural, social, and relational institutions are refit to the measures and valuation of Western scientific and economic practice.

Theorizing the New Enclosures

While much of the work coming out of critical intellectual property studies has traced "publicization" and privatization processes within the law and legal discourse, a parallel and related body of work has given increased attention to theorizing intellectual property as a novel form of privatization and enclosure (Boyle 2003; Runge and Defrancesco 2006; Mansfield 2007; Prudham 2007; Kloppenburg 2010). Like much of the other work intellectual property, this work has situated intellectual property within a longer history of capitalism (Escobar 1995; Lewontin 1998; Kloppenburg 2004) and colonialism (Kloppenburg 2004; Castro-Gómez 2007), and it has opened up new spaces for thinking about intellectual property subject matters outside of the public-private binary that for many years dominated anthropological discussions over intellectual property. In particular, a number of scholars working within the vein have begun to explore the ways in which many IP subject matters might be or, in some cases, are managed as a commons (Hess and Ostrom 2007; Boyle 2007) while others have sought to actively contribute to the construction of new types of limited commons around seeds (Kloppenburg 2010, 2014).

By granting inventors temporary monopoly rights as a reward for the innovation of new and useful crop varieties, intellectual property right laws facilitate the redefinition of the public domain, private property, and the social relations of agricultural production. In the broadest sense, situating the expansion of intellectual property rights within the history of the enclosure movement has linked current legal transformations in intellectual property right law with processes of primitive accumulation, the politics of inclusion and exclusion, and the changes in economy, society, and property that made the expansion of capitalism possible (Mansfield 2007; Prudham 2007). More specifically, drawing the parallel between the Enclosure Movement of 16th century England and current transformation in intellectual property law has highlighted the

relationship between classic studies of the commons and more recent attempts to understand "intangible" resources (those often subject to intellectual property) as a commons (Boyle 2003; Runge and Defrancesco 2006). Much of this work underscores the ways in which the logic of enclosure and the promise of private property remain immensely powerful today, having morphed to suit the needs of intellectual property.

While the study of the commons was a direct response to the tendency to treat common property systems as if they were open access, unowned, unregulated, unmanaged, overexploited, and prone to failure (Ostrom 1990), research on new enclosures has pointed to the ways that "incentive to create" justifications for intellectual property protection recall classic arguments about the "tragedy of the commons." Research on what Boyle (2003) has called the "second enclosure movement," for example, has challenged the idea that private property rights are the only way to avoid the tragedies of underinvestment, overuse, or under-innovation of those works, inventions, and plant varieties that comprise the subject matters of emerging intellectual property rights. In theorizing intellectual property-based enclosures, scholars have challenged the idea of the private-public binary to incorporate an understanding of knowledge-as-commons, wherein commons are marked by shared norms, prestige networks, and stipulations of access and use (Hess and Ostrom 2007).

This emerging body of work on property recalls Ribot and Peluso's (2003) discussion of access, that puts attention on "bundles of powers" that establish rules of access rather than "bundles of rights" that define boundaries of ownership. Multiple types of commons and public domains emerge, not as solely undifferentiated, negative spaces, where all things free linger, but as potential multiple spaces, some of which are marked more by "bundles of privileges" than free and open access (Drahos 2004, 2006; Roa-Rodriguez and van Dooren 2008; Foster 2012).

Nonetheless, questions remain as to how, in certain cases, this literature has dealt with the epistemological framework of the commons literature (Goldman 1997) and the problem of the romantic, undifferentiated commons (Chander and Sunder 2004).

The Many Properties of Seeds

Human management of seeds and crop germplasm has not been analyzed through the lens of common property theory until recently (Roa-Rodriguez and van Dooren 2008; Halewood 2013). This is perhaps surprising given that discourses of property have been central to discussions of seeds, crop germplasm, and plant genetic resources since at least the 1980s. Eyzaguirre and Dennis have argued "one reason that the plant genetic diversity has proven so difficult to explore from the institutional and economic perspectives is its nature as an impure public good with both inter-generational and interregional dimensions" (2007:1490).

In theorizing the knowledge commons, Hess and Ostrom (2007) have argued that unlike typical common-pool resources, knowledge tends to be non-rivalrous: or rather, use of ideas or information by one does not subtract from what is available for use by others. However, they contend, like typical common-pool resources, it is often difficult to exclude others from using ideas and information, once made public. In traditional studies of the commons, goods that are both non-rivalrous and non-excludable often are classified as public goods, whether or not they are managed as such.

Like ideas and information, seeds do not possess many of the characteristics of traditional common pool resources, which are characterized by non-excludability and rivalrousness. Unlike theoretical forays into the properties of ideas and information, however, questions of seeds and seed management must address both the materiality of seeds and the more fluid permeability of

varietals and genes (Roa-Rodríguez and van Dooren 2008). To date, much of the literature on the institutional dimensions of "seeds" approaches the question of resource properties from the level of "plant genetic resources" (Eyzaguirre and Dennis 2007; Halewood et al. 2013). In many ways, the orientation of this lens might be traced to both the regulatory history of "plant genetic resources" and the historical imaginary that scholars have brought to the question of past commons. As a result, it is the emergent public goods qualities—sometimes discussed as "impure" public goods—of seeds and crop germplasm that have received the most attention (Eyzaguirre and Dennis 2007).

At the same time, much of the literature on this topic has analyzed the transformation of property regimes associated with crop germplasm at the international level. So, for example, work has focused on the ways that international laws, emerging bilateral and multilateral agreements, and the changing dimensions of access to germplasm have transformed "plant genetic resources" into private goods, club goods, public goods, and common pool resources (Halewood 2013). Likewise, Roa-Rodríguez and van Dooren (2008) and Halewood et al. (2013) traced the ways that various international agreements have transformed plant genetic resources from a global commons into private goods and protected commons. The result is a growing body of work that theorizes enclosures and diverse commons arrangements, but does so with greatest emphasis on the international management of germplasm and the property arrangements that such management effects.

Yet, in their physicality, seeds are susceptible to loss and depletion (Roa-Rodríguez and van Dooren 2008). While seedstocks can be lost due to drought, infestation or consumption in periods of hunger, the act of using seeds as seeds, actions that might deplete other resources, also enables their reproduction. Seeds, in their smallness and in the degree to which small stocks can

be readily reproduced, are not excludable in the same way that, say, tractors and diamond rings are. For crop species like rice, for example, an entire seed stock might be produced from the hulled gleanings of a bag of imported rice or from elephant dung (Richards 1996b). This difficult-to-exclude quality of seeds is perhaps one reason why intellectual property rights have proven to be such powerful tools for the enclosure of crop resources.

The question, then, of how farmers—across diverse times and places—assert their own claims to seeds and germplasm has received less attention. Nonetheless, a number of scholars have begun to explore the institutional dimensions of farmer seed management (Eyzaguirre and Dennis 2007; Dennis et al. 2007; Badstue et al. 2007) and the ways that farmers manage crop germplasm using different commons arrangements (see Kamau and Winter 2013; Tapia and Tobin 2013). Along with work on seed networks (McGuire 2008; Ellen and Platten 2011; Pautasso et al. 2012; Kawa et al. 2013) and the social relations of seed exchange (Longley 2000; McGuire 2008), this literature has begun to follow the ways that farmers negotiate access to germplasm and the ways that practices of exchange are intertwined with both local cosmologies and the daily negotiations of personhood. Yet, the materiality of seeds coupled with the fluidity of germplasm raises questions about how scholars go about tracing how farmers make claims to seeds. Like Tsing's (2003) discussion of the ways that Meratus make intersecting and overlapping claims to certain resources, there is a need to think through how farmers understand and deploy claims to both seeds and crop varieties.

Uncommon Property

With the growing emphasis placed on discussions of the public domain and commons in intellectual property (and seed-related) research, other scholars have pointed out how discussions

of the commons sometimes reified, rather than broken down, a binary between private property and the public domain. Chander and Sunder (2004) have identified a number of factors that have buttressed this binary, ascendant among them is the tendency for scholars who express concern over current intellectual property-based enclosures to turn their study to an unspecified, unproblematized, romanticized public domain or global commons, one that is assumed to be equally exploitable by all members of the public. The authors argue that the tendency to ignore inequality and power in the study of the public domain and the commons stems from the emphasis placed on efficiency and sustainability, rather than equality, in the study of common property regimes. They note that "trapped in this discourse framed by Hardin's law and economic prophecy, the literature regarding the commons remains impoverished, captured by a nearly single-minded concern for efficiency. While property talk routinely recognizes interests beyond efficiency, commons talk remains trapped in the framework established by law and economics" (2004: 1333).

Chander and Sunder (2004) argue that an unspecified, unproblematized public domain, coupled with the new forms of robust, internationalized, intellectual property rights mandated under TRIPs, can actually facilitate the enclosure and the expropriation of others' cultural, intellectual, and productive resources. This apparent contradiction results from the ways that TRIPS provides powerful property-seekers new forms of foreign recognition for their intellectual property rights. At the same time, more powerful property-seekers have greater ability to access information, knowledge and practices in other parts of the world. Here, Chander and Sunder are getting at one of the central paradoxes of bioprospecting and its relationship to emerging intellectual property regimes: the power of different actors to move between sites of intervention and negotiate terms of their engagement in prospecting biodiversity and associated knowledge is

not equal. As such, those who would prospect have differential power to produce the publics from which they draw (Hayden 2003b; Nigh 2002).

Chander and Sunder (2004) argue that instead of focusing on the undifferentiated public domain or the global commons, scholars need to give greater attention to *uncommon property*, hybrid property/commons arrangements that do not fit neatly into traditional expectations about property or the commons. Carol Rose also addressed this dilemma in her discussion of the need to give greater attention to the intricacies of limited common property—"property held as a commons among the members of a group, but exclusively vis-à-vis the outside world" (1998: 132). The internationalization of intellectual property, she noted, has posed particular challenges for how scholars of property think through claims to intellectual creativity. The telescoping power of both the public-private binary coupled with the internationalization of intellectual property quite often has produced the appearance of non-property, or *res nullius*, within other types of property, management and governance regimes. Here, Tsing's reminder that some types of resources can fit "simultaneously but awkwardly into classifications as individual and common property" (2003: 32) is an important one. As I argue throughout the following chapters, sometimes the ways that people make claims to resources will not fit neatly into the categories of private or public property: personal claims may require sharing and ongoing efforts at collective action might be interrupted by moments of individual agency, attribution, and renown.

Methods and Analysis

The stories and histories I present here were collected during 24 months of research carried out between 2008 and 2012. My first visit to The Gambia was during the summer of 2008, and was very brief. I returned in February 2010 and stayed until April 2012, taking a short break to return

to the United States for a few months in 2011. It was during my 2008 visit that I had the opportunity to meet with many, fifty to be exact, rice farmers in Jenoi, to visit their fields, and to talk to them about seed exchange. When I returned to Jenoi in 2010, I met with many of these same farmers as well as others in the nearby villages of Soma, Pakalinding, Sankwia, and Karantaba. Over the course of fifteen months of ethnographic research, people were kind enough to let me ask them questions about their lives, the village and regional history, their seed management practices, and what varietal innovation and seed exchange meant to them. During this time, my research assistant and I carried out 28 life history interviews, 75 seed network analyses, and over 98 field visits where we mapped and measured the farms of 24 farmers in Jenoi.

For the first round of semi-structured life history interviews, my research assistant and I conducted a random sample of 16 out of a total of 107 extended family compounds in Jenoi. When possible, we spoke with one man and one woman from each compound who were responsible for agricultural decision-making. In five of the 16 compounds selected in the sample, however, there was only a single adult in residence. Hence, we collected life histories from only 27 people, but this gave us an opportunity to discuss with farmers (or in some cases ex-farmers) the history of the region, recent changes in the village, transformations in farming practices, crop histories, and most importantly, what these histories mean to them (Vansina 1985). From this initial round of interviews, we did follow up seed network interviews with the 24 people who were still the primary agricultural decision-makers within their labor-work units. These interviews explored farmer seed exchange, who shared crop germplasm with whom, under what conditions exchanges occur, and the social relationships through which crop germplasm flowed (Subedi et al. 2003; Ellen and Platten 2011; Pautasso et al. 2012; Kawa et al. 2013).

These interviews also enabled us to explore how farmers attributed meaning and value to seed transactions and the social pathways that different farmers relied upon to negotiate of access to crop germplasm. In order to discuss with farmers how they conceptualized the source of off-types and the innovation of new varieties, my research assistant and I developed a series of hypothetical scenarios about new and existing off-types and the selection of off-types for the development of new varieties.[10] My research assistant and I carried the seed network analysis through two additional network samples, by sampling 40 percent of round one's listed alters and 30 percent of round two's listed alters. This sampling method allowed us to capture approximately 47 percent of round one and round two's listed alters. The details of our methods for network sampling are outlined in Appendix 1. In all, we conducted seed network interviews with 75 farmers across the villages of Jenoi, Sankwia, Karantaba, Pakalinding, and Soma.

During these interviews we had long conversations with farmers about how intellectual property law is currently drafted in various countries. I wanted to know what farmers thought about these laws—as they are written elsewhere and in the many forms that they take. Most often, after explaining how utility patents for novel plant varieties work in the United States, most farmers responded with some degree of humored surprise. One farmer did not miss a beat. He said, "That sounds like it is very good for the market, and very bad for farmers." These conversations served as a point of entry for discussing how farmers themselves think about rights to seeds and the question of ownership. Talking to farmers about the politics of intellectual property thus elicited their commentary on what they understood to be valid forms of property.

People in Jenoi were also kind enough to invite me to their fields, to their parties and celebrations, and to their work days to let me "participant observe." I would not have come to understand the ideas and practices discussed with farmers during interviews in the same light had

[10] Off-types are plants that do resemble the parent population in which they are found.

I not had these experiences. Although my own personal history as a farmer certainly prepared me for the rigor of farming in The Gambia, I fumbled through certain agricultural tasks at first—particularly transplanting and harvesting rice—and yet people were patient with my rice tillers-cut-too-short, my transplants-stuck-too-deep, and my incessant questions. One day, two hours into harvesting rice at the farm of an elder woman named, my research assistant looked at me and said, "You know, if I asked the questions you do, people would find me very annoying." The elder farmer laughed and gave a big "yoooo!," a sign of approbation and agreement.

Between 2010-2012, I also spent six months doing archival research at the National Archives of The Gambia in Banjul. My time spent in the archives gave me insight into the rise of colonial bioprospecting and plant breeding in The Gambia, the transformation of farmer seed exchange during the twentieth century, and, in particular, the way that colonial officials came to understand such changes. These histories not only provided interesting contrast to my analysis of farmer seed exchange practices today, but they forced me to reevaluate some of the very terms that scholars bring to the study of plant genetic resources.

To analyze my historic and qualitative data, I have carried out content and textual analysis on farmer interviews and archival materials. I have used Excel, SPSS, and the social network analysis software Gephi to analyze quantitative and network data.

Structure of This Dissertation

In the chapters that follow, I variously trace histories, current practices, and colonial encounters surrounding farmer seed management. Admittedly, there is not a great deal of data on the historical transformation of farmer seed management, as seed exchange practices are not usually the stuff of oral or colonial histories. Nonetheless, where evidence of changes does exist, it is

illuminating of the ways that farmer seed exchange is dynamic. A good or appropriate exchange seventy years ago, for example, may be one wrought with moral turpitude today. In chapter two, I discuss the transformations in society and production that have come to influence farmer seed management today.

In the third chapter I provide background on current production practices in the village of Jenoi. I argue that current production practices have not only been shaped by long-term changes in society and economy, but they also shape farmer seed management in a number of ways: in who is exchanging seed, in what is being exchanged, and in how farmers, at least in some cases, access crop germplasm. In particular, today women are the primary rice farmers, while men produce millet, groundnuts, and, occasionally, upland rice. As an inbreeding crop and as a crop that is planted across diverse ecologies to mediate demands put on women's agricultural labor, women maintain a diversity of rice varieties. This also means that they are also the farmers most heavily engaged in seed exchange.

The fourth chapter explores the ways that farmers currently understand the process of varietal innovation. Farmers explained varietal innovation as a long-term process that involves a number of different human and non-human actors working together, sometimes collectively, sometimes separately, to bring varieties into being. I contend that it is in how farmers come to understand and appreciate the labor and relationships that comprise this process where notions of rights and claims to crop germplasm begin to take shape. Importantly, the ways that farmers articulated varietal innovation departs from depictions of farmer varietal development as merely collective. At the same time, it raises questions about models of inventiveness that insist that varietal development is an event, rather than a process of emergence.

In the fifth chapter I analyze practices of seed exchange and the ways that farmers understand exchange as a process through which people gain access to seed, social relationships come into being, obligations are formed, and moral personhood is demonstrated to society. I discuss the ways in which my attempt to trace seed networks might be better conceived as an exercise in gathering stories about generosity, self-sufficiency, and social networks rather than the flow and maintenance of crop diversity through society. These social and economic dimensions of farmer seed exchange practices raise a number of questions about and blur the boundaries between "free" and "unfree" gifts. Just as farmers' seed practices in The Gambia defy the rigidity of the classification as either commodity or reciprocal exchange, for example, they do not necessarily preclude certain types of commercialization, although social pressures against many types of commercial seed transactions remain high. And, as Sara Berry (1993) has noted, commercial transactions often are imbued with multiple meanings and remain embedded within broader social relations tempered by social status, authority, and power. The themes of rights, obligations, and access run through chapters four and five and might be best thought of three sides of the same thing. Rights to seeds are in many ways rights and obligations that exist between people and which mediate the ways that people and groups gain access to crop germplasm.

The sixth chapter traces colonial accounts of bioprospecting to explore the ways that Gambian and European contributions to crop breeding were represented and recognized within colonial narratives. I argue that germplasm exchanges between colonial officers and Gambian farmers relied on a simultaneous recognition and denial of farmer skill and farmer contributions to early plant breeding projects. Through the recognition of European contributions to plant breeding and the subsequent obfuscation of Gambian ones, the records of colonial germplasm

transfers differentially framed the social relations of exchange. I argue that the non/recognition of different gifts ultimately framed the economy of "free and open" germplasm exchange in very specific cultural terms, namely those set by colonial plant breeding projects and European notions of "free gifts." The seventh and final chapter concludes with a discussion of emerging developments in The Gambia's quest towards intellectual property harmonization and some of the possibilities that exist for the government to draft more equitable *sui generis* legislation.

CHAPTER 2

CONTINUITY AND CHANGE IN JARRA WEST

In this chapter I trace transformations in identity and production practices in Jenoi and, more broadly, the region of Jarra West that have come to influence seed exchange practices. Jarra West is the present-day Gambian district that at one time comprised part of the Mande state of Jarra. Scholars of The Gambia have given a great deal of attention to the ways that the spread of Islam, the expansion of cash cropping, the gradual rise and eventual imposition of colonial rule, and later the emergence of development practice have transformed social and economic life throughout the region (Barry 1998; Wright 2010). Although many of these changes began to unfold in the nineteenth century, they are rooted in a much older history, namely West Africa's long relationship with the Islamic world and the rising influence of the Atlantic world since the fifteenth century (Ṣaul 2006).

Throughout The Gambia, changes in identity and production have come to influence the social relations of household and agricultural labor (Swindell 1977, 1980; Weil 1984; Carney and Watts 1990; Haswell 1991; Kea 2004), the control of land and other types of property (Carney 1986, 1993; Carney and Watts 1991; Schroeder 1993, 1997; Freudenberger et al. 1997; Sarr 2009, 2010), and the geographies of agricultural production (Haswell 1991; Webb 1992; Carney 1991). As I will discuss in the chapters to come, these transformations have also come to influence farmer seed management practices. Today, the ways that farmers in Jenoi make sense of varietal innovation invokes a cosmology influenced by distinctly West African interpretations

of Islam. Farmers discussed appropriate seed transactions in terms of the teachings of Islam, often pointing to the prohibition on charging interest on loans or the hadith that "one should never return a gift" to explain how a person ought to engage in seed transfers.[11] Likewise, differences in men and women's production practices patterned how farmers gained access to seed. These gendered patterns are, in many ways, a legacy of groundnut commercialization and transformations in the social relations of production that unfolded during the nineteenth and twentieth centuries, changes that are intimately linked to the rise of European colonialism and the renegotiation of social practice along the Gambia River.

Thus, the shifting practices of farmer seed management are not simply the consequences of growing dependence on world capitalist markets since the sixteenth century, the rise European colonial rule in the nineteenth century, or even the outcomes of development policy of the twentieth century. Instead, as Linares has pointed out with respect to Jola religious and productive practices in Senegal, such transformations "are also a result of the often contradictory ways in which ideological processes have negotiated between old practices and new economic opportunities" (1992: 7). To understand how farmers in The Gambia approach the question of ownership in crop germplasm thus requires attention to shifting agricultural practices and to the ever-constant negotiation over how people construct themselves and their world. The institutions that mediate farmer seed management in The Gambia are by no means static, and there is a need to understand how these institutions have changed (or stayed the same) as people have come to construct, make sense of, and act in new ways.

In the first sections of this chapter, I trace the dynamics of identity in the region over the past several centuries. I give particular attention to two dimensions of identity that have come to

[11] Hadith are accounts of what the Prophet Muhammad said or did.

shape farmer seed management in very different ways. First, I trace the construction of ethnic identity amongst people living along the River Gambia. Today most people living in Jarra West have come to identify as Mandinka, and in some form or fashion trace their ancestry to the historic Mande homeland along the Inland Niger Delta of Mali. As throughout much of the region, the construction of identity in Jarra West has been immensely fluid, marked by flexibility in the ways that people adopt and ascribe ethnic categories and the adoption of certain Manding-style religious and cultural practices, even amongst non-Manding peoples.[12] Thus, while there are certain differences in the ways members of different ethnic groups in The Gambia approach the issue of landed property (Sarr 2009), this is not the case with seed management. Rather, amongst members of diverse ethnic groups in Jarra West, it seems that fluidity in the construction of ethnic identity—and how people negotiate this fluidity—has fostered similarities in seed management practices.

Second, I follow the spread and eventual adoption of Islam amongst most inhabitants of Jarra West during the late nineteenth and early twentieth centuries. The spread of Islam occurred both through a number of militant Islamic reform movements and the non-violent work and teachings of Muslim clerics. Islam has been in West Africa for over a thousand years, however, and it belies the history of the entire region to discuss the changes that occurred in the nineteenth century by drawing a line between a pre-Islamic "traditional" Gambia and a newly Muslim region (Ṣaul 2006). The events that unfolded in the mid-1800s grew out of a much longer history of Muslims and non-Muslims living and working side-by-side, often peacefully, sometimes not. After the fighting of the nineteenth century, however, it was largely the work of Muslim clerics

[12] David Dalby (1971) used the term "Mande" to describe Mandinka, Maninka, Bamana, and Dyula ethnic groups. I choose to use the term Mande in this context to refer broadly to a number of Mande groups/identities in Senegambia that can be traced back to old Mali. These include both historic and contemporary Mandinka, Soninke, and Jahanke.

and Sufi brotherhoods during the twentieth century that helped advance the teachings of Islam (Ṣaul 2006). I argue that farmers themselves make sense of changes in seed exchange practices within the framework of religious and ideological practices that unfolded during the twentieth century.

In the second section of this chapter, I trace the history of Jenoi from its founding in the nineteenth century up to the present. I give specific attention to changes in Jenoi's demography and agricultural production, changes that are not unique to Jenoi, but instead parallel the histories of many other villages throughout the entire region. The nineteenth and twentieth centuries witnessed major changes in agricultural practice, which left women to shoulder most of the responsibility for food production: the dissolution of domestic slavery, the proliferation of commercial groundnut production, and the subsequent intensification of sexual division of labor. These transformations are contemporaneous with, and thus cannot be clearly separated from, the rise of British colonial rule.

Construction and Negotiation of Identity in Jarra West

For many centuries, the Gambia River has attracted peoples from throughout West Africa, many of whom were seeking new economic opportunities in the trade routes and rich agricultural lands flanking the river basin. As a result, today The Gambia is ethnically diverse, home to people who identify as Mandinka, Jahanke, Layibo, Jola, Wolof, Fula, Tukulor, Serer, Sarahule, Manjango, and Aku, among others, and who trace their ancestry to such diverse regions as Mali to the west (as with Mandinka and Jahanke), Senegal to the north (as with Wolof, Serer, Fula and Tukulor), Futa Jallon and riverine regions to the south (as with Jola and Fula), and even Sierra Leone (as with many Aku). According to the 2003 census, Mandinka and their close relatives, Jahanke,

constitute the ethnic plurality, at approximately 36 percent of the nationwide population (Jaiteh and Saho 2006). Much of the Mandinka population is concentrated in the rural areas that are well suited to growing rice, particularly the various districts of Jarra and Kiang. Today, over half of all inhabitants of Jarra West and the neighboring districts of Kiang East and Jarra Central identify as either Mandinka or Jahanke, followed by Fula, Jola, Wolof, and Sarahule (Jaiteh and Saho 2006).

Jenoi is considered a Mandinka village because the lineages of the two original founding families are Mandinka. Like many other villages in Jarra West, Jenoi is also an ethnically diverse settlement, possessing a number of Fula, Jola, Wolof, Bambara, Manjago, and Sarahule households in addition to the Mandinka majority (79% of extended family compounds in Jenoi identify as Mandinka, see Appendix 2). In Jenoi I lived in an extended-family household that people identified as a Fula compound. This ascription is confirmed by the fact that the compound is identified by a Fula patronym, and its members had recently associated themselves with the newly formed Fula ward within the village. During my time in the village, the compound was not permanent residence to a single person who identifies as Fula. My host mother, who identifies as Mandinka, had married a Fula man, although he had passed away before my arrival. Her senior co-wife, who identifies as Fula, had relocated to the city near the coast. Their children, who had all relocated to the urban area near the capital city of Banjul, carry a Fula patronym and identify as Fula. But, further confounding the boundaries of ethnicity, all of their children first learned to speak Mandinka, few speak any Fula, many have married people who do not identify as Fula, and none are involved in livelihood activities that are historically associated with being "Fula."

Contributing to this ethnic fluidity is the tendency of many Gambians to trace their ancestry to more than one ethnic group, sometimes personally identifying as one, the other, or

both ethnicities (Thomson 2011). Even when people identify as one or another ethnicity based on lines of patrilineal descent, which is most common, in reality the interstices between ethnic differences are crosscut by language, marriage, extended family, associative kin, or even acculturation to a particular "Mandinka," "Fula," or other way of life. This "blurriness" is compounded by other facets of identity that are often more important to a person's sense of self than any ethnic title, such as association with an extended family, a prestigious social class, place of origin, or religious affiliation (Wright 1999). For example, when two people meet for the first time in The Gambia, they first inquire about each other's surnames and second their places of origin.[13] Sometimes ethnicity might be implied in this information, sometimes not. Further defying simplistic notions of ethnic difference are a number of widely shared cultural and ideological practices that have helped foster a sense of shared identity across ethnic boundaries. The widespread adoption of Islam amongst inhabitants of Senegambia in the early twentieth century provided one such shared identity across ethnic groups (Nugent 2008). More recently, the spread of certain types of reform Islam has further facilitated the blurring of ethnic difference at the same time that it has helped forge common identities across social class (Jansen 2011).

[13] It should be noted that even asking about "place of origin" has many layers. People may trace their origin to their birthplace or the place where spent their childhood, but quite often people will claim a parent's or a grandparent's village as their "place of origin" even if they themselves have never spent a significant amount of time there. This can be a very practical and strategic form of introduction, as it immediately makes links to extended kin networks and increases the likelihood that people might identify some form of common ground in their new acquaintance. Here too, the importance of *dankutoo*, or the joking relationship, comes into play—as one of the most common forms of joking relations are between people from different regions. Thus, people from Jarra and people from Niumi can establish an instant joking relationship, as can people from Kiang and Baddibu, for example. Even I, who was only inducted into this practice fictively, was regularly asked where I was from (in The Gambia). When asked by a Niuminka, my answer of Jarra Jenoi was immediately met with some joke about Jarankas. But, when asked by a Kianka, my answer of Jarra Jenoi was often met by some exclamation along the lines of "but you have a name from Baddibu!" After conceding that my host mother was indeed from Baddibu, I would be informed that I might be staying in Jarra Jenoi, but I was in fact a Baddibunka.

Historically, the adoption of certain shared cultural practices throughout Senegambia has served to crosscut other perceived ethnic, linguistic, and cultural differences. Since at least the fifteenth and sixteenth centuries, the expansion of the Mali Empire and, subsequently, the spread of Islam throughout southern Senegambia led to the adoption of a number of unique social and cultural institutions throughout the region. The result was the emergence of type of widespread "cultural unity" that transected diverse social groups (Barry 1998: 5), a unity that was similar to, yet distinct from, the institutions and practices of the Mande homeland.

The fashioning of identity thus has been and continues to be marked by both a high degree of fluidity between ethnic ascriptions and immense dynamism in the widespread cultural practices that crosscut them. Nonetheless, the construction of ethnic differences in Senegambia has also been subject to a certain degree of European colonial imagining and post-colonial reimagining (Nugent 2008). It is to the question of ethnicity, the construction of Mandinka identity, and how scholars of The Gambia have dealt with these processes that I now turn.

Ethnicity in the longue durée: the spread of Mande influence in Senegambia

When Francisco de Lemos Coelho wrote about his journey up the Gambia River in 1684, he described the European and African inhabitants (enslaved and free) in the Kingdom of Jarra:

> On the southern side [of the Gambia River] there is a very small river emerging among thick mangroves; this river takes the name of the kingdom. You go up it in a boat or canoe—since ships cannot enter it—for some two leagues to the port, and from there to the village is a short distance. Whites live there. It is very prosperous and well supplied, and has plenty of trade, chiefly in the form of many blacks, husked rice, some wax, hides and ivory. The blacks are Mandingas, like all the other blacks on this river, and they observe the same (Islamic) rites (quoted in Gamble 1996: 42).[14]

[14] In this instance "Mandinga" refers to Mandinka.

Coelho was likely describing Bai Tenda, or the port of Jappeni (Gamble 1996). At the time, Jappeni was one of the two seats of power in the Mandinka kingdom of Jarra—the other being at the town of Badume—between which royal power rotated.[15]

Contrary to what Coelho suggests, however, not all peoples living in Jarra or the other Mande kingdoms flanking the Gambia River in the seventeenth century would have identified as Mandinka or as Muslim (Barry 1998; Wright 1985, 1999). The region was culturally, linguistically, and religiously diverse, and as the historian Donald Wright (1999) has pointed out, ethnic identity—at least as it is conceived of today—likely possessed a very different significance to the region's inhabitants. The cultural landscape that Coelho encountered on his journey was the outcome of centuries of internal population migrations, interregional trade (Barry 1998), the gradual spread of Islam through the teachings of Muslim clerics and the movement of Muslim traders (Wright 2010; Saho 2011), and the imperial expansion of West African states (Barry 1998). As a result of these processes, diverse peoples, with diverse beliefs and practices, came to call the land along the Gambia River basin "home."

Scholars have proposed a number of theories to explain how so many people living along the Gambia River have come to trace their roots to the Mande homeland (Figure 2.1). To this end, many historians have pointed to the migration of Mande peoples into Senegambia, a process that involved two broad phases or, in some accounts, waves of gradual migrations (Wright 1977; Brooks 1993). In these accounts, the earliest Mande immigrants into southern Senegambia, the region south of the Gambia River between the Futa Jallon plateau and the Atlantic coast, may

[15] Wright (1999) has noted the ambiguity of using the word "kingdom" to describe the polities that emerged along the banks of the Gambia River during the last millennium, and prefers the Mandinka term *bankoo* to describe the political entities that emerged starting from the fourteenth century. Gamble (1987) has described *bankoo* as "land, country, district, earth, soil, inhabitants," which is how people in Jenoi today still invoke the term.

have begun to arrive as early as the ninth century (Wright 1977; Brooks 1993). At the time, the region was predominantly inhabited by indigenous populations of Bainuk, who lived in distinct, non-hierarchical polities and who were involved in trade between the Gambian and Casamance Rivers. As Mande traders, hunters, clerics, and farmers moved into areas inhabited by Bainuk, they assimilated into Bainuk communities and would "have been forced to accept the political dominance of Bainuk rulers" (Nugent 2008: 927). It was during this time too that many Jola migrated into the region of southern Senegambia, also settling in Bainuk communities.

Conversely, it was not until later, after subsequent waves of Mande and Jola arrived, that the demography shifted and indigenous Bainuk increasingly were absorbed into growing Mande and Jola communities (Nugent 2008). In the process "people switched ethnic groups and languages" (Barry 1998: 35). People with Jola, Bainuk, or Serer patronyms adopted Mande identities, while to the north of the Gambia River others with Mande patronyms came to identify as Wolof or Tukulor (Wright 1977; Barry 1998).

In the twelfth century, the Mali Empire invaded and conquered Kaabu—the region between the Atlantic coast and the Futa Jallon plateau that is located in the northeastern zone of present-day Guinea. Through this invasion, Mali brought much of the region from Futa Jallon to the Atlantic coast under its military control, establishing the region of Kaabu as one of Mali's westernmost holdings (Barry 1998; see Figure 2.1). The society and state that emerged in Kaabu were a unique fusion of cultural practices reminiscent of the Mande homeland and the cultural practices of indigenous Bainuk populations. Like Mali, Mande Kaabu was immensely hierarchical, with its tripartite differentiation between slaves, craftspeople, and farmers and noblemen. Yet the influence of matrilineal, non-hierarchical Bainuk populations on the new

social order was evident in the transmission of Kaabu's royal power through the matriline (Wright 1985; Barry 1998).

As the power of western Mande territories grew over the next few centuries, a number of independent Mande kingdoms, outside of direct control by the Mali Empire, emerged along the banks of the Gambia River (Quinn 1971; Wright 1977; Schaffer and Cooper 1980). Consequently, it was not until the late sixteenth century or early seventeenth century, when

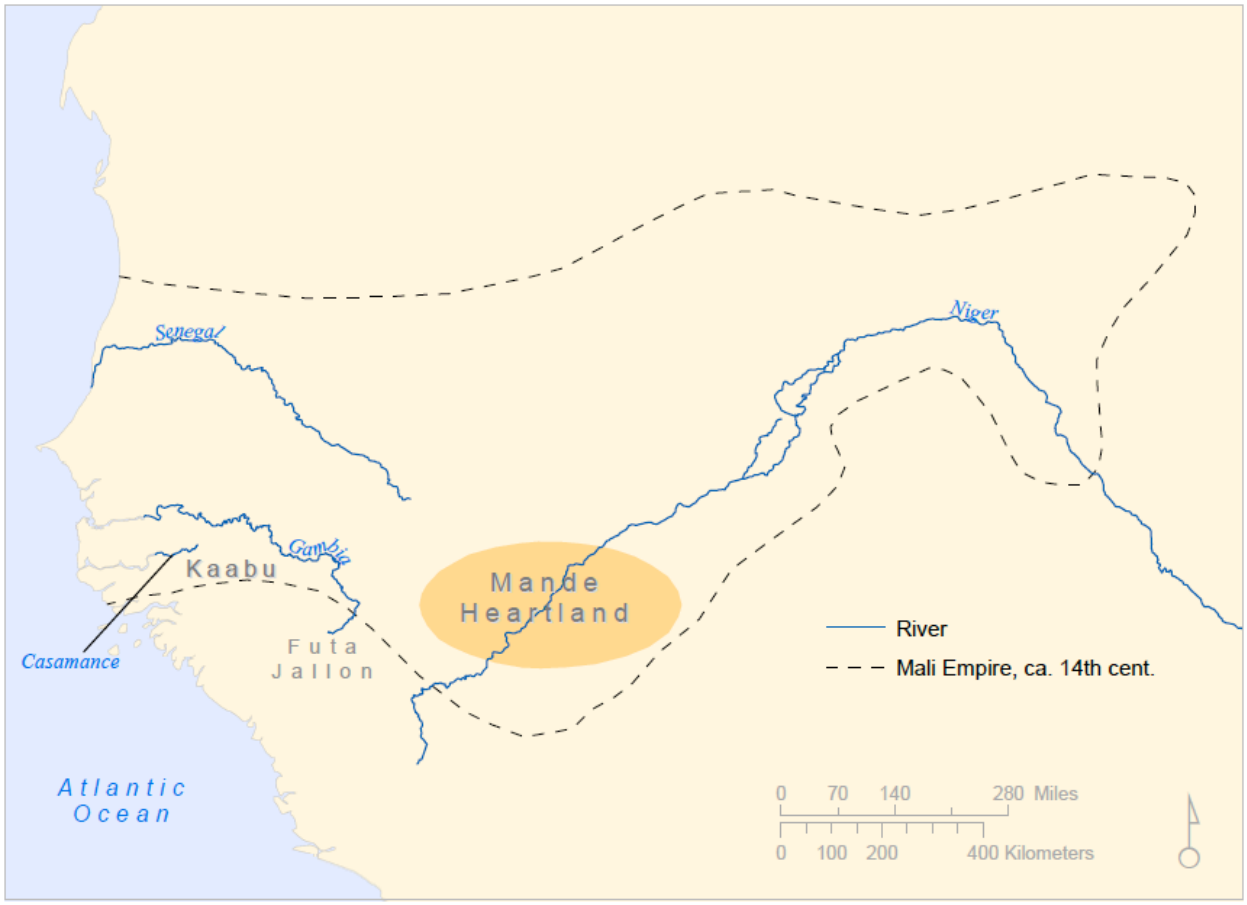

Figure 2.1: Map of West Africa showing the range of the Mali Empire circa the 14th century. Map Credit: Brandon Adams.

Mande Kaabu had broken free from Mali's control and had begun to expand northward toward the Gambia River, that the kingdom of Jarra was incorporated into Kaabu's sphere of political and economic influence (Wright 1977).

Wright (1985) has since questioned the degree to which the rise of Mande influence in Senegambia was achieved solely through human migration, asking whether it might be more accurate to discuss the gradual adoption of Mande cultural practices and identity by non-Mande peoples throughout the region. Even though oral histories describe the migration of Mande peoples into Senegambia through the growth of trade routes and the expansion of the Mali Empire, Wright suggested that perhaps such histories "explain symbolically what cannot otherwise be explained—the emergence of a present ethnic identity" (1985: 337). Wright's reassessment of Mande migrations underscores both the problems inherent in using contemporary conceptions of ethnicity to trace the historic movement of peoples and the trouble of invoking European interpretations of ethnic nationality to understand the construction of identity in pre-colonial Senegambia. These tendencies, Wright noted, tend to "fog our understanding of the present and the past" (1999: 426).

For example prior to the nineteenth century many of the people living in the Mande states along the Gambia River likely would have identified as Soninke, a Mande ethnonym that in The Gambia (particularly in the past) was used to describe non-Muslim or nominally-Muslim Mande peoples.[16] For centuries, Soninke rulers held power in these states until the spread of Islam and the imposition of European colonialism began to fundamentally reorganize the balance of religious and political power in the 1800s, facilitating the transformation of social and religious

[16] Even today, when elders in Jenoi discussed the history of Jarra West, they tended to refer to non-Muslim Mande peoples of the region as Soninke and Muslim Mande peoples of the region as Mandinka.

identities in the process (Wright 1999). In fact, the ruling families of the lower Gambian Mandinka states may not have adopted any identity considered "Mandinka" until after 1600, when Kaabu wielded immense cultural and political power throughout the region. Even then, what it would have meant to be "Mandinka" remains unclear. As Wright has noted, "Identity was fluid and ethnicity, if such a concept existed, was a permeable membrane through which passed links of marriage, ties to religion, and much more" (1999: 423).

In this regard, much attention has been focused on both the spread of Mande influence through population movements—a gradual process that began as early as the ninth century—and what some scholars have described as the "Mandingization" of non-Mande peoples, particularly Jola and Bainuk populations in the region of Senegambia south of the Gambia River (Wright 1977, 1985, 1999; Linares 1992; Brooks 1993; Nugent 2008; Thomson 2011). In her discussion of the negotiation of identity among Jola and Mandinka farmers of Casamance, Senegal, Olga Linares described the construction of identity in southern Senegambia as a reflexive "subtle, two-way process" (1992: 148). Other scholars have argued that identification with any sense of "Mandinkaness" in pre-colonial Senegambia appears to have been marked by both a high degree of plasticity between identities *and* the production of certain new cultural practices (Wright 1977, 1999; Barry 1998).

This approach to understanding the construction of identity in Senegambia resonates with what Terence Ranger has described as "pluralism both before, during and after colonialism" (1993: 80). Since the publication of Ranger's *The Invention of Tradition* in 1983, a number of scholars have revisited the idea of invention to explore the construction of ethnicity in Africa before and after colonial rule. Ranger (1993) has since criticized the idea of invention of ethnicity under colonialism as too one-sided, granting too much credit to the power of European

hegemony and eliding the role played by Africans themselves in negotiating their identities. Much of the research on the history of social dynamics in Senegambia supports this critique. As Thomas Spear has pointed out, "ethnic concepts, processes and politics predated the imposition of colonial rule, developing in the context of conquest states, regional exchange networks, dispersion, migration, settlement and urbanization" (2003: 24).

So, while Europeans often misunderstood ethnic concepts, misread the construction of local identities, and sometimes misapplied ethnic categories in Senegambia, they often were working with preexisting, indigenous categories. Paul Nugent (2008) has argued that despite fluidity and dynamism in the construction of ethnicity, inhabitants of Senegambia still recognized certain ethnic boundaries, no matter how fluid and dynamic those boundaries were. Evidence for these ethnic distinctions appear in both oral histories of Gambians today—with their simultaneous references to migration and conquest as well as pre-Mandinka heritage—and in written accounts of early European explorers such as Francis Moore, who commented upon the many different groups of people—Mandinka, Jola, Fula, Wolof, and Creole—he encountered living along the banks of the Gambia River during his journey in 1730 (Wright 1985; Nugent 2008). Nugent has suggested that the ethnic categories used to describe diverse peoples in pre-colonial, colonial, and post-colonial Senegambia were not so much European inventions as they were evidence of the "ways in which colonial identities involved mutations of older forms of signification" (2008: 939). In this sense, many early European and colonial sources were simultaneously invoking indigenous labels at the same time that they were misrepresenting them—as is evident in Coelho's erroneous claim, cited above, that all inhabitants living along the Gambia River in the seventeenth century were Muslim Mandinka.

Transformations in identity and ideology along the South Bank

To some degree, the spread of Mande influence and the transformation of ethnic identity cannot be understood outside of the spread of Islam in Senegambia. By the early nineteenth century, Muslims traders and clerics had been living and teaching along the banks of the Gambia River for centuries, often as the guests of their non-Muslim or nominally Muslim hosts. Sometimes Muslims formed clerical communities where they could practice their religion, teach students the Qur'an, and carry out commerce away from political life, from which they were excluded (Barry 1998; Wright 2010). From an early date, the influence of Muslims along the river had been growing—both due the importance of their role as traders and to the magico-religious work that they provided to Muslims and non-Muslims alike (Wright 2010). This is what Mahir Şaul has called the "joint or overlapping praxis" (2006: 22) of Islam in West Africa: Muslims and non-Muslims often participated together in socio-religious practices, some of which were clearly in observance of Muslim beliefs, some of which were not. Rather than attempt to sort out what is "Manding" or "extra-Islamic" in these practices, Şaul argues that scholars should give attention to the ways that this joint participation created the cultural context in which traditions and cultural practices took shape. As he put it, "there is no pagan essence that is set ontologically against Muslim essence" (Şaul 2006: 24) in West Africa.

It is partly against this historic relationship that the events of the nineteenth century should be understood. In The Gambia, the nineteenth century ushered in a number of social, economic, and political changes that reorganized life along the banks of the river. The second half of the nineteenth century coincided with both the continued expansion of British and French colonial rule and the eruption of religious wars throughout the region. The Soninke-Marabout wars, as they were called, were a series of *jihads* led by a number of militant Muslim reformers

against "pagan" Jola, Bainuk, Soninke, and Mandinka. These Soninke controlled royal political power throughout the Mandinka kingdoms of Senegambia (Linares 1992; Wright 2010; Hughes and Perfect 2006). While conversion to Islam was perhaps one goal of the Marabout leaders who led the violent *jihads*, the motives behind the uprising were much more complex. Wrapped up in claims about proselytization, were also struggles for freedom from oppressive aristocratic rule, for abolition of monopoly control over land, as well as conquest for political power and personal wealth (Linares 1992; Barry 1998; Wright 2010; Sarr 2009).

Meanwhile, the British had acquired Bathurst Island (what is today the capital city of Banjul) in 1816, and from that point their presence along the Gambia River had been grown steadily. By 1840, Britain had already claimed control of the "Ceded Mile," MacCarthy Island, and "British Kombo" (Sarr 2009; see Figure 2.2). The British saw the uprising of militant Muslims throughout the countryside as a threat to their own control, and at least in some instances, the British directly supported the established Soninke rulers through military force (Wright 2010). In other parts of Gambia, however, the British were much more reticent to enter the spreading conflicts, although they remained concerned about maintaining a balance of power that was favorable to their own commercial interests (Nugent 2007).[17]

Along the south bank of the Gambia River, Fodé Silla and Fodé Kaba, amongst others, led the offensive against both Soninke leaders of the Mande kingdoms and other non-Muslim Jola and Bainuk settlements. Kaba, in particular, led extended campaigns throughout the region that lasted until 1901. Through his fighting, he eventually came to rule three districts along the

[17] The turmoil caused by years of fighting ultimately destabilized social and economic life along the south bank of the Gambia River. Using military force, the British and French intervened to remove the marabout warlords, parsing the region into different French and British territories. In the process, many leaders along the south bank of the Gambia River—particularly those leaders whose power was threatened by Kaba—agreed to recognize British sovereignty (Gray 1966; Barry 1998).

south bank of the river: One that comprised the area to the south of Bintang Creek, another that comprised eastern Kiang and western Jarra together, and one that comprised eastern Jarra. Between these three territories—in what is today Central Jarra—Soninke rulers were able to maintain control over their own territories (Gray 1966). This division of allegiance to Kaba is reflected in the boundaries of Jarra's three districts to this day (Gamble 1996).

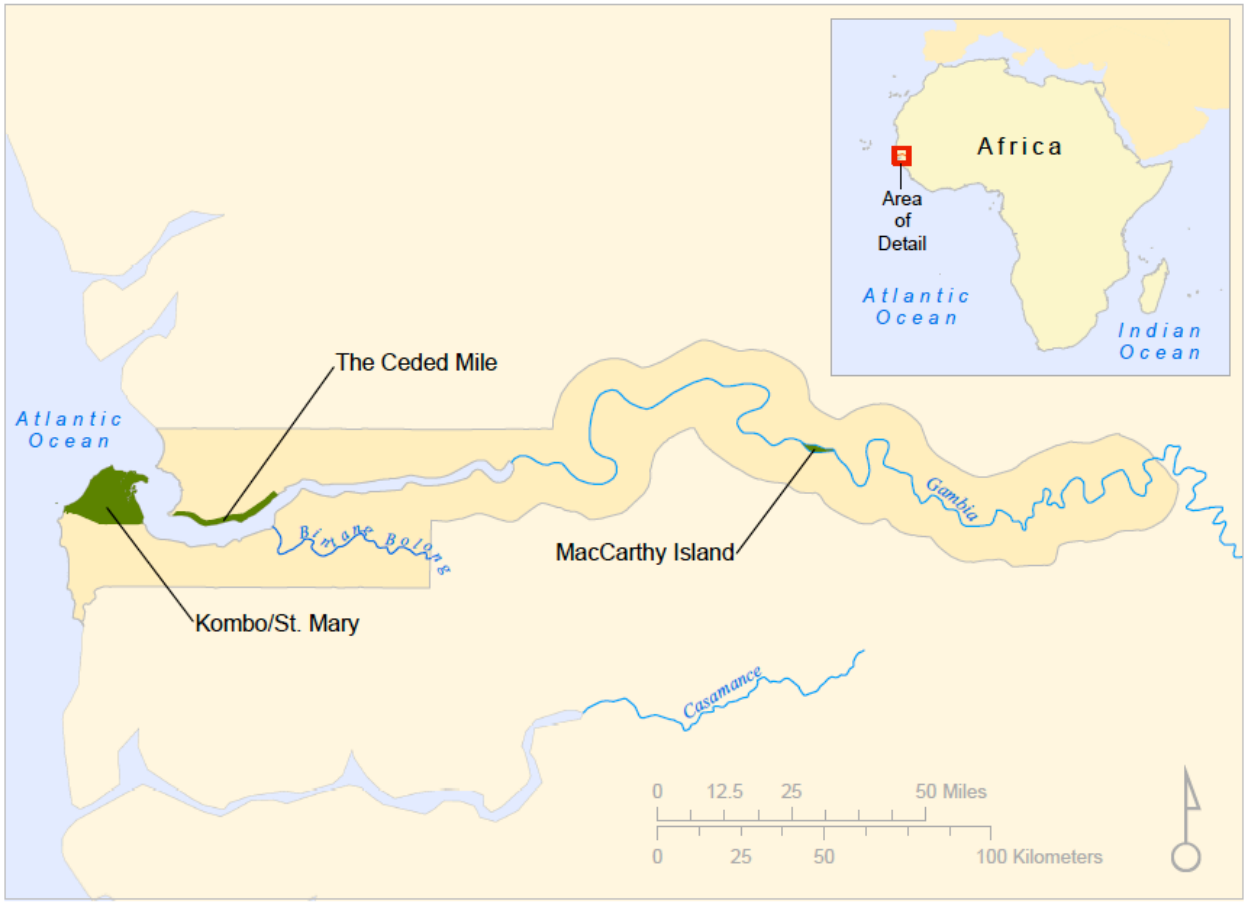

Figure 2.2: Map of British colonial holdings in The Gambia circa 1840. The three major British holdings at the time are highlighted in green. The entirety of The Gambia with its present-day boundaries came under formal British control with the creation of the Protectorate in 1893. Map Credit: Brandon Adams.

As the British looked to consolidate the boundaries of the Gambian Colony and Protectorate in the late nineteenth century, they increasingly grew wary of Kaba's continued fighting along the south bank of the Gambia River.[18] In late 1891 the British sent a message to Kaba that they refused to recognize his authority and that he should thereby remove himself from the region. When Kaba ignored the message, British Troops attacked and drove Kaba south into Casamance. It was after this attack that the British consolidated their rule over Kiang and western Jarra, and by 1901, almost all fighting had ceased throughout the region (Gray 1966). However, events were in motion that effectively ensured the widespread adoption of Islam amongst the region's inhabitants (Nugent 2008).

Despite the attention given to jihads in the historiography of West Africa (Curtin 1971), the fighting that plagued parts of Senegambia during the last half of the nineteenth century was by no means the only, nor perhaps the most important, way that inhabitants of the region came to understand and adopt Islam (Saho 2011). Noting the lack of attention that scholars have given to the peaceful dissemination of Islamic teaching in the region, Bala Saho has argued that it was the work of a number of Muslim clerics—often trained in the teachings of Sufism—that was integral to how Islam was "widely internalized by the peasantry" (2011: 2). Indeed, the peaceful dissemination of Islam in West Africa through the work of clerics has a long history (Sanneh 1976). Even during the militant uprisings of the late nineteenth and early twentieth centuries, Muslim clerics, whose approach to Islam was markedly different than those engaged in jihad,

[18] The difference between the Colony and the Protectorate was largely one of method of rule. Throughout the Protectorate, the British established their system of indirect rule, where local "chiefs" were appointed by the British government to enforce "customary" law and collect taxes. The Colony, on the other hand, was predominantly urban and was home to the colonial headquarters.

were establishing Quranic schools and attracting followers from throughout Senegal and The Gambia.

Some scholars have suggested that the spread of European colonialism enabled Muslim clerics, whose approach to Islam was rooted in mysticism, to expand their teachings throughout Senegambia by creating a space of relative stability after years of fighting led by militant Muslim reformers. Through attention to the stories that circulated around Muslim clerics, Saho (2011) traced how people living along the banks of the Gambia River came to value and adopt the teachings of these scholars. Often people were drawn to the teachings of clerics because of the stories about the miracles they performed and the demonstrations of *baraka* (divine grace, blessedness) that these holy men achieved. As Saho noted, whether or not such stories depicted actual events is unimportant, but rather accounts about the miracles and displays of *baraka* performed by Muslim clerics lend insight into how people came to understand and adopt Islam throughout the region.

Today, people memorialize the lives of Muslim clerics through stories and yearly pilgrimages to holy sites, often in search of *baraka* (Sanneh 1976; Saho 2011). In Jenoi it is not uncommon to hear stories of leaders such as Amadou Bamba, founder of the Murid Brotherhood in Senegal, told at lunchtime or at night as people gather in the center of the compound for conversation: stories about how Bamba had lived in a giant baobab tree or how, after coming across a lion while walking in the woods, the lion bowed to him. During the dry season, when people have time away from farming, they may make pilgrimages to holy sites such as Touba in Senegal or Bidgin in Guinea. In 2011 my host mother travelled to Bidgin in observance of Muhammad's birthday. On her return, we heard many stories of the miraculous events that have come to pass there—of freshwater springs that can grant the prayers of those who bathe in their

waters, of a giant *taboo* (*Cola cordifolia*) tree that protects the village from those who would do harm, of a local mosque that somehow magically resists any attempt to connect it to a source of electricity, and so on.

The disparity between the attention given to jihad in the historiography of Islam in West Africa and the ways that people actually have come to internalize religious practice often surfaced in the histories that elders told to me about the spread of Islam throughout the region. During an interview one day, for example, an elder in the village explained how the people of Jenoi responded to the fighting of the Soninke-Marabout wars. He said:

> At the time of the war, Jenoi had a place where people made prayerful wishes (*duwa*) [to God]. That place is where the Agriculture Station is now. People call that place *Mambàntaŋ*.…The first people of Jenoi never made idols, but they went to ask for prayers at the tree [at *Mambàntaŋ*].[19] They entrusted themselves [to that tree]. That tree had a jinn and the jinn anticipated that the people would come. That jinn came to the place; it became a Muslim. If you were confused and you went to beg there, the jinn would help you…. At the time of the war, the fighting was coming to Jenoi and those who were fighting wanted to come for the town. At the time, the jinn of *Mambàntaŋ* went out to meet those who were fighting. The jinn put bees out there. Jinn know bees. The jinn spread bees all around those who wanted to come fight in Jenoi. The bees confused the fighters such that they could not arrive [in Jenoi]. And before the fighters would be able to arrive here, they would have found all of the people hiding. That happened here, but it was not done with idols.

Much is going on in this history relevant to the spread of Islam in Jarra West and the ways that people have come to understand those changes. Although the jinn of *Mambàntaŋ* had adopted Islam prior to the jihads of the late nineteenth century, in this history, the people's orientation toward Islam is more uncertain. With the insistence that people's prayers were carried out without idols (*jalaŋo*; also meaning spirits or fetishes), however, their practices are situated

[19] *Mambàntaŋ*, meaning "Grandfather/mother silk cotton tree" comes from the prefix "mam-" which means "grandmother" or "grandfather" and *bàntaŋo*, or the African silk cotton tree.

within a way of asking for spiritual assistance that ultimately looks to the power of Allah and Allah's creatures. It was also the *Mambàntaŋ* jinn, knowledgeable in the ways of Islam, who drove the jihadists away before they could ever reach Jenoi. Here, Saho's (2011) observation that people living along the banks of the Gambia River have in many ways come to understand their own Muslim identity through a legacy unrelated to jihad—or in some instances in opposition to it—is particularly relevant.

The spread of Islam in the late nineteenth century provided many people living along the south bank of the Gambia River a shared cultural and ideological practice that helped forge a sense of unity across other markers of identity, such as ethnicity. As Nugent has argued, "where group boundaries were previously hard they were more easily breached and where they were already permeable they became yet more so" (2008: 939). People adopted new practices at the same time that they enrolled older cultural and economic institutions into their practice of Islam (Klein 1972), forging new types of shared identities and social practices in the process. Practices of seed management were not exempt from these transformations. Social institutions that mediated seed exchange were simultaneously enrolled and reinterpreted within new practices under Islam. At the same time, changes in agricultural production came to influence how men and women carried out seed transactions and how they made sense of those transactions within the moral economy of Islam.

Changes in Demography and Production in Jenoi

The village of Jenoi rests at the edge of a massive rice swamp, approximately 180 km inland from the mouth of the Gambia River. Like all villages flanking the river in Jarra West, Jenoi is located in the seasonally saline tidal zone of the Gambia River. This tidal zone, or the "middle

stretches" as it is sometimes called, is approximately 110-290 km upstream from where the river meets the Atlantic Ocean, and it is the zone where rice production in lowland tidal swamps is possible. From 0-110 km up river, the water is too saline to allow any form of agricultural production. From about 110-180 km, the water of the river is only seasonally saline, and from about 180-290 km, while the river is tidal, it carries fresh water year-round (Webb 1992).

Records of Jenoi's settlement appear on the earliest village survey of the district conducted by British officials in 1894 (Gamble 1996), and oral accounts from elders place the founding of the village sometime in the nineteenth century. The village is now in its third settlement, currently nestled at the base of two hills, *Baaniŋ Konko* (River-with-Hill) and *Saŋ Konko* (Rabbit Hill), which jut out into the surrounding rice swamps. Jenoi likely moved to its present location sometime in the late nineteenth or early twentieth century. At that time, many villages along the middle stretches of the Gambia River moved closer to the lowland rice swamps to accommodate changes in agricultural production, changes that were largely due to the expansion of peanut cash cropping and increased reliance on lowland rice for domestic food production (Webb 1992).

Groundnut Production and the Rise of Strange Farming

Although Gambian farmers had been cultivating groundnuts since the sixteenth century, commercial production of groundnuts was not widespread in The Gambia until the nineteenth and early twentieth centuries (Brooks 1975; Swindell 1980; Webb 1992). The move toward commercial production was partly due to colonial policy, which mandated farmers to pay taxes in specie, and partly due to the reorientation of economic activity in The Gambia towards trade

with Europe (Wright 2010).[20] The rise of commercial groundnut production brought with it a number of changes in the social relations of production. First, it helped reorient household agricultural responsibilities, effecting a sexual division of labor whereby men controlled commercial upland production and women were responsible for food production (Carney and Watts 1991). As extended family households shifted their production practices to suit the new cash economy, the labor forces of large households often split into smaller units. These smaller work groups could still effectively cultivate groundnuts, but fewer people per work group made it more difficult to mobilize the large amount of seasonal labor needed for clearing land and scaring birds in millet and sorghum fields (Haswell 1991). All of these factors combined to make the production of coarse grains for food consumption more difficult and less desirable. At the same time, the production of groundnuts also propelled the rise of migrant farming by attracting young men from other parts of The Gambia and West Africa who were in search of seasonal work and new economic opportunities (Swindell 1978, 1980).

These migrant farmers, also known as strange farmers (*sàmaa-maneelaa*, pl. *sàmaa-maneelaalu*), were mostly young men from the interior of West Africa or other parts of The Gambia who left their homes in search of seasonal economic opportunity and adventure. Such opportunities enabled young men to acquire cash or imported European goods in a context where kin or extended community could not as easily make claims to their wealth (Swindell 1980; Sallah 2013). In their new destination, strange farmers would find a host or a landlord. In exchange for land, lodging, and inputs—including seed—the strange farmer would work

[20] In 1893 the British colonial government in Bathurst declared formal control over the Protectorate of The Gambia. As part of this measure the British colonial government passed a series of ordinances that established licensing fees for groundnut traders, taxes for strange farmers, and taxes for each family compound within the Protectorate. As these taxes were required in specie, the new tax ordinances forced many Gambian farmers into some form of commercial production (Wright 2010).

between one and four days a week on his host's farm, and the rest of his days he could devote to tending his own crops. Depending on his arrangement with his landlord, a strange farmer might pay his host ten percent of his harvest (Swindell 1980). Sometimes, loans of seed given to strange farmers were also repaid. Travelling commissioner accounts from the 1920s suggest that in certain parts of The Gambia, strange farmers would repay seed loans from their hosts at a rate of two to one (CSO 2/711).[21]

The rise of migrant labor enabled the rapid expansion of groundnut cash cropping throughout Senegambia, but not without other costs. In general, the expansion of cash cropping resulted in less land and labor being devoted to growing food crops, and beginning in the mid-nineteenth century, imports of rice into The Gambia rose drastically (Wright 2010). At the same time, seasonal influxes of strange farmers put further pressure on local food supplies. The concurrent reorientation of men's labor towards commercial production and the influx of migrant laborers into the Gambia River basin stressed food supplies and exacerbated seasonal food shortages, especially in years of cash crop failure or when farmers received a poor price for their groundnut crops on the international market (Webb 1992).

Rice Development and the Expansion of Lowland Swamp Production

Concerned about food shortages and the rising rice imports brought on by the expansion of groundnut production, the British colonial government established an Agricultural Research Station on the outskirts of Jenoi in 1946. The station was intended for research on rice development to improve domestic food production (Gamble 1996). Eventually the Jenoi

[21] Seed Nuts, Scheme for Distribution: Commissioner Macklin wrote of the groundnut seed exchange practices that he had witnessed during his work in the North Bank Province. Macklin's observations of local exchange practice helped shape the development of seed nut storage laws.

Agricultural Station was joined by an Agricultural Camp, and even later, by a Mixed Farming Center.[22] Rice specialists from across the British Empire came to the Jenoi Agricultural Research Station to carry out varietal trials and to conduct research on improved production methods for rice in The Gambia. Not long after the founding of the Agricultural Station, the colonial government began to award funds for a series of projects to extend access roads into the deep-water mangrove rice swamps for many villages, including Jenoi, across the regions of Kiang and Jarra, thereby greatly increasing the number of lowland hectares under cultivation.

The extension of the swamp roads along the middle stretches of the Gambia River not only facilitated access to existing rice plots, making travel to and from rice fields easier, but it opened up new areas for rice production in the nutrient-rich mangrove soils of the swamps, thereby improving domestic rice production (Haswell 1991; Webb 1992). In her forty-year study of economic change in the village of Genieri, just nine kilometers from Jenoi, Haswell (1991) found that contrary to many other colonial development projects at the time, the extension of the swamp roads in the mid-twentieth century benefited both large, wealthy households and smaller, poorer ones that often, due to settlement chronology, had only marginal access to prime farmland.

[22] Today, the neighboring Agricultural Research Station is the regional headquarters for agricultural extension throughout the Lower River Region of The Gambia. The Agricultural Camp is responsible for hosting meetings and trainings for a number of governmental and non-governmental organizations. It also serves as a "home away from home" for many of the people who work at the Agricultural Research Station. While some residents of Jenoi work at the Agricultural Research Station and the Agricultural Camp as mechanics, electricians, watchmen, and cooks, most of the trained agricultural extension workers and senior staff are home-based in other parts of the country.

Figure 2.3: Picture of women's ripening lowland rice fields from the hill *Baaniŋ Konko*. The red (*Rhizophora racemosa*) and black (*Avicennia germinans*) mangrove forests that flank the Gambia River (Jones 1994) can be seen on the horizon.

In Jenoi, the expansion of lowland rice production into the mangrove zone in the mid-century was so great that one elder recalled that "standing on the edge of the swamp, one could see almost all the way to the river." Having better access to rice swamps further accentuated the sexual division of labor between the uplands and the lowlands and between cash crops and subsistence crops as rice production expanded to accommodate changing household consumption patterns (Carney and Watts 1991). The result of these shifts was that women were increasingly responsible for the production of subsistence crops such as long-season rice in the tidal swamps and short-season rice and findoo (*Digitaria exilis*) in the uplands. Men, on the other hand,

focused on the commercial production of groundnuts in the uplands, and to a much lesser extent, the subsistence production of millet and sorghum.

Improved access to rich farmland, coupled with the potential to find employment with the Department of Agriculture, proved to be a draw for families from other parts of The Gambia that were looking for new opportunities. During the second half of the twentieth century, Jenoi experienced a great influx of new immigrants. Between 1946 and 1973 the population of Jenoi swelled by 340%, the fastest population grown rate of all surveyed villages in Jarra West for that time period (Gamble 1996; see Appendix 3). These immigrants settled in Jenoi as the guests or "strangers" of an established host family or lineage. These host families supported their new "strangers" by providing access to land and social support within the village. These stranger households, in turn, became part of the extended family lineage of their hosts, sometimes marrying into the host's family. This in-migration helped make Jenoi, in the words of the current Director of Agriculture of the Lower River Region of The Gambia, "perhaps the most stranger-village in all of The Gambia."

Because the lowlands are inundated by daily and monthly tidal fluctuations in the Gambia River, access to the deep-water mangrove swamps helped farmers along the middle stretches of the Gambia River to weather years of drought. Access to these swamps proved particularly important in the late 1940s during several consecutive years of poor rainfall (Webb 1992). In the 1950s through the mid-1960s, however, rainfall along the middle stretches of the Gambia River was generally good, ensuring strong harvests in both the uplands and the lowland production zones (Haswell 1975). During the same period, the continued expansion of lowland production, coupled with the expansion of groundnut farming in the uplands, transformed the relations of food production: intra-compound labor was increasingly oriented towards smaller,

more nuclear family work groups (Weil 1973; Webb 1992), a change that in the long run left smaller households and smaller work forces with less labor to devote to the production of crops such as coarse grains (Haswell 1991).

The Sahelian Drought

In the early 1960s, the colonial government stopped provisioning funds to projects that improved swamp production, including attention to the construction and repair of swamp roads. Instead, the colonial government redirected their agricultural development programs toward ox plowing for groundnut production in the uplands (Weil 1973; Webb 1992). What ensued during the 1960s was the deterioration of many of the swamp roads, which needed regular repairs and which required capital investments that most villagers themselves could not afford. This was not a serious problem until, in 1968, the twenty-year Sahelian drought set in across The Gambia, Senegal, and Mauritania. In the early years of the drought, the movement of the river tides within Jenoi's swamp provided a buffer against the lack rainfall that made production in the uplands during the drought more unpredictable. However, protracted drought not only meant less rainwater to flush salt out of the swamp soils, but it also meant that the salt tongue—the interface where saline meets fresh water in the Gambia River—moved further upriver, even in the height of the rainy season (Webb 1992). Ultimately there were fewer months of fresh water tides to wet the tidal swamps of Jenoi.

Women in Jenoi recalled this time of prolonged drought: as salt accumulated in the soils at the edges of the lowland swamp, women were able to move their production further into the mangrove zone closer to the river. Some women recounted that, during those twenty years, they also were able to cultivate short-season rice in the hydromorphic soils of the uplands. Men too

adjusted their production practices. Aggregate agricultural production statistics from The Gambia during the drought indicate that farmers, for a time, put increased emphasis on the production of coarse grains, which fair better than groundnuts when rainfall is low (Webb 1992).

In 1979, the German Development Agency, Deutsche Welthungerhilfe, launched the Freedom From Hunger Campaign (FFHC). Housed in the Jenoi's Agricultural Camp, one of the program's primary campaigns was to increase the production of swamp rice by repairing and expanding access roads into the lowland swamps along the middle stretches of the Gambia River. In a series of food-for-work programs, FFHC worked with villages along the middle stretches to open up 5,000 hectares of lowland swamps for production (Webb 1992). In Jenoi, farmers went to work on the swamp roads in exchange for imported rice, oil, and potted meat. FFHC also distributed a number of short-season lowland rice varieties, one of which women named *puudaroo* or "chemical" for the chemical insecticide that had been applied to the seed, a detail provided by FFHC leaders during the seed distribution to deter farmers from eating the seed stock.

By the mid-1980s, the salt accumulation in tidal swamps made rice production impossible in many of the lowlands along the middle stretches of the river. Farmers in Jenoi remembered a period of about six to eight years when all rice production in Jenoi's lowland swamps ceased: there was simply was not enough fresh water to flush the salt out of the soil. During those years, if there was enough rainfall, women said that they continued to work upland rice in hydromorphic depressions, or, when rainfall was insufficient to grow rice, they focused their efforts on growing vegetable gardens for both home and market production. Some women also said that they cultivated tiny amounts of lowland rice experimentally each year to test the

soils in the swamp, a practice that enabled some women to maintain prized lowland rice varieties during the long period of salinization.

With the end of the Sahelian drought, women in Jenoi returned to the lowland swamps to cultivate rice. Men also started to grow groundnuts again, often alongside, but sometimes in annual rotation with, millet and sorghum. Since the end of the drought, the demographic trends of the mid-twentieth century have changed too. Elders in the village remembered a time not long ago when Jenoi experienced a period of outmigration, and people regularly point to the sites of abandoned compounds. Much of the outmigration, people explained, was due to people leaving to settle in more urban areas. In particular, much of the village's small Christian population left, and today only one household in Jenoi, home to one man, identifies as Christian. The rest identify as Muslim. Elders' memories of the years since the drought reflect the demographic changes captured in the 1993 census: during the last decades of the twentieth century, population growth in Jenoi slowed, while that of nearby towns, especially emerging peri-urban centers such as the nearby town of Soma, has swelled (Haswell 1991; see Appendix 3).

Teasing Out the Traces

A number of scholars have observed that differences in ethnic identity in Senegal and The Gambia do not explain differences in farmer seed management (Osborn 1990; Nuijten 2005). Indeed, there were no discernable differences in the ways that the Mandinka, Wolof, Layiboo, and Jola farmers in Jenoi with whom I spoke discussed varietal innovation or their own seed transactions. Given the history of the region, and the fluidity with which ethnicity is negotiated today, this is perhaps not surprising. Rather, echoing Boubacar Barry (1998), the history of

ethnicity in West Africa has enabled a certain degree of shared cultural practice that undergirds how farmers approach issues of seed management.

Yet at the same time, transformations in religious identity and practice and changing realities of agricultural production have all come to shape current practices of farmer seed management. Peter Weil (1984) has noted that with the spread of Islam, the crop payments that strange farmers made to their hosts were enrolled within the Muslim institution of *sadaa* or charity. Yet in Jenoi, when hosts demanded payments from their strangers under the auspices of the ten percent annual charity in Islam, such requests were often hotly contested on the basis that they were a misuse of *sadaa*, which should only be given to the poor or those to sick or old to work. Where payment to a host was unavoidable because of differences in power, the occasion of the request alone was cause for scornful gossip. It seems that with the initial widespread adoption of Islam, social institutions were enrolled within new religious practices, only to be eventually reinterpreted—and contested—through a new moral lens.

Likewise, today repayment of seed loans with interest—as observed by colonial officers in the early twentieth century—fosters a degree of unease. As I will discuss more in chapter five, loans of seed in Jenoi were not common—people generally gifted, exchanged, or purchased seed instead. Every farmer explained that repayment of seed with interest or *ribaa* was banned under the teachings of Islam. Instead, people insisted, if a person loans a bag of groundnut seed to another, the seed should only be repaid with exactly one bag. One groundnut farmer in Jenoi, Faa Junkung, explained this change in transaction practices during an interview. He said:

> If you migrate someplace to farm and you do not take seed, you will say to your host 'help me with seed.' He will give you seed. You will farm it, you will weed it. When it is ready, you will harvest it and you will clean it. And that one bag—or maybe two bags—of seed that he gave to you, you will pay that amount. What you have there, what remains, that is yours….In the past people were not very aware and at that time people would pay back more than they borrowed. But today, that never happens….In the past,

> things were not plenty, people were tired/remiss in the way of Allah. Now the ways to Allah are not plenty, and Allah himself does not like that type [of lending].

Only one farmer said that if someone really wanted to charge interest, he could, but he explained that such a practice was not very common.

In fact, loans of seed in general—even without interest—were very uncommon. One elder farmer in town explained the reticence of many farmers to enter a seed loan as being the result of better access to cash today than in the past: Now, if a farmer needs seed, he would rather purchase it directly than take a loan. In many ways loans create a grey area in exchange, a space where the specter of returning too little or returning too much, and thus the fear of usury lingers over the course of an entire growing season (Dresch 1998). Sales (like gifts and exchanges) of seed, on the other hand help eliminate that possibility by concentrating each side of the transaction into a single moment.

In other cases, ethical narratives that circulated around buying and selling seed hinted at the complex interplay between new economic opportunities and changing social and ideological practice. During interviews women were often emphatic that "we [women] never sell rice seed," as selling rice seed was neither a practice they "found with their parents" nor did it manifest the same relational closeness as gifts and exchanges might. For many women, this ethical hierarchy of gifting, exchanging, and selling was also wrapped up with the ways that they talked about the spiritual reward that returns to those who provide good quality seed to other farmers, a topic I to which I return in chapter five. While there is a growing commercial market in rice seed in other parts of The Gambia (Reece et al. 2011), buying and selling rice seed was something that many women in Jarra West approached with apprehension. This did not mean that all farmers shunned buying or selling rice seed: indeed, a number of men reported that they had purchased rice seed in the past. One man, for instance, described with pride how he purchased the variety Nerica No.

1 several years prior from his friend in another part of the country, and in doing so he became the first person in the village to cultivate the variety.

Although women never bought or sold rice seed, they did, however, sometimes buy and sell garden vegetable seed. One woman, after saying, "Women never sell [rice] seed. We gift it. We met this practice with our elders," recalled that, even when she was little, men bought and sold groundnut seed. She then said that in the past she used to sell vegetable seed to other women in her village, as she had an excellent okra variety—which has since been lost—that women would purchase from her. In these contrasting narratives about the ethics of seed exchange, attention to the history and political ecology of production is important. The rise of market gardening in the 1980s and 1990s provided a foray into commercial production for women, parallel to the rise of men's commercial groundnut production in the nineteenth century. Commercial gardening, in many ways, broke open the women-subsistence-crop and men-cash-crop binary that had for many years shaped the gendered relations of production in The Gambia (Schroeder 1997). It seems that to some extent, the history of commercial production for both groundnuts and vegetable seed has changed how farmers differentially approach the ethics of seed transactions. Part of this difference too may relate to men and women's differential access to cash—as men are more enmeshed in cash crop production and wage labor than women.

Part of this difference, however, is also related to the complex ways that market rationalities have intersected with social and religious narratives about seed transactions. What is significant here is how changes in the social relations of production have come to influence the ways men and women differentially practice and understand seed transactions. In the gendered narratives that circulate around these various transactions, the faint traces of how "an existing world view [gave] rise to particular ways of representing money" (Bloch and Parry 1989: 19)

and monetary exchange begins to take shape. New economic opportunities were enfolded into and reassessed within ever-changing economic theologies. These intersections and frictions reveal the heterogeneity of ethical and religious discourses at play in daily life. They also point to how religious and economic discourses about seed transactions might be patterned by some aspects of market practice while also supplying alternative conceptions that supplant and destabilize capitalist rationalities (Mittermaier 2014b).

In the chapters that follow, I discuss the ways that farmers understand and articulate varietal innovation, seed transactions, and rights to seeds. Traces of the transformations in identity and production that unfolded during the nineteenth and twentieth centuries are present throughout. For example, the moral world of varietal innovation is framed within a cosmology patterned by distinctly West African interpretations of Islam, although it is likely that, in this case as in others, old ways of seeing the world were enrolled into a new ways of talking about it. Likewise, women are the primary participants in seed transactions, a gendered difference in seed management that reflects changes in agricultural practices during the nineteenth and twentieth centuries.

CHAPTER 3

SHIFTING ETHNOECOLOGIES AND THE GENDERED RELATIONS OF PRODUCTION

I buka dookulaa joo, i ka i níyoo sewondi –Mandinka proverb
You never pay the worker, you make his soul happy

In this chapter I discuss some of current agricultural and labor practices in Jenoi that shape farmers' varietal repertoires and their seed transactions. Like in many other rice-growing areas in West Africa, one of the biggest constraints to agricultural production that farmers face is having sufficient access to labor. As the social relations of production in The Gambia have changed over the past century, farmers have relied upon a diversity of production ecologies, crop repertoires, and social strategies to mediate the demands of agricultural production and labor bottlenecks. Since at least the mid-twentieth century, for example, the availability of male labor within extended family households has been a factor influencing the shift away from the production of coarse grains to the cultivation of groundnuts (Haswell 1991). Likewise, maintaining crop and varietal diversity and social access to new cultivars are some of the many that farmers, particularly women, alleviate the labor demands of the agricultural season.

To some degree, the gendered agricultural practices that took shape during the nineteenth and twentieth centuries still persist in Jenoi. Women work rice across a gradient of production ecologies from the deep-water lowlands to the rainfed uplands. Men work groundnuts and millet in the uplands. Where these gendered boundaries have begun to get muddled—namely in the production of upland rice—men and women still employ very different varietal repertoires, have secure access to land in different production ecologies, and rely on different types of social labor

to meet the demands of production. All of these differences influence seed exchange practices and how it is that farmers access new cultivars. For example, the women with whom I spoke, who remain the primary cultivators of rice, tended to have a greater number of seed exchange partners than men (6.1 versus 2.5 on average, respectively). At the same time, transfers of rice seed were far more common than transfers of millet or groundnuts in general. This is partly due to the sheer number of rice varieties used by farmers across different production ecologies. But it is also partly due to the importance of varietal diversity for mediating the demands of producing rice, particularly for women. Nonetheless, both men and women cope with the demands of agricultural labor by relying upon a number of ecological, technological, and social strategies, of which negotiating access to diverse cultivars is merely one.

In the first section of this chapter, I discuss the emic categories that farmers use to describe agricultural production ecologies in Jenoi. The hydrological regimes of these different ecologies limit the number of days that fresh water is available for rice production, which, in turn, influences the varietal repertoires that farmers maintain. One very common reason that women sought out a new type of rice was to acquire a variety that possessed a slightly different ripening time than the other varieties they cultivated: Slight differences in days to maturity for rice varieties might mean the difference between planting it in the uplands or the lowlands. It might also mean the difference between having enough available labor at the right time of the season to bring in a harvest or suffering serious crop losses to birds, monkeys, the shattering of dry panicles. The ripening sequences of rice varieties were often the subject of lively conversation, and women would list varieties from earliest to latest, always curious to know where a new variety might fit in the harvesting schedule. As one women told me at the start of

harvest season, listing rice varieties by ripening time, "women will harvest this way: *Meeji wuleŋo*, *kasi koŋo*, *Sherifu maanoo*, *Faa Damba*, *nukuro*, *tulusee*, *njurutu*, *yaaka baa*."

In the second section, I give an overview of the organization of household labor, how this has changed over time, and the differences between the availability of such labor for men and women. Because marriage is both polygamous and patrilocal, most extended family compounds in Jenoi consist of one or more working-age men, their wives, parents, children, and in some cases, their strangers or long-term guests. Marriage relations influence the availability and the organization of male and female labor within each compound, and thus affect the various strategies that men and women use to mobilize pooled labor. In the third section, I discuss recent changes in the geographies of men's and women's production. Despite the recent adoption of upland rice production by men, men and women still rely upon different labor-saving strategies to bring in the harvest. Even in upland production, men tend to have access to different types of agricultural technologies, such as animal traction and machinery, than women, who more often rely on varietal diversity and social strategies to manage labor demands.

Finally, in the fourth section, I trace current agricultural practices involved in the production of rice, groundnuts, and millet. I give specific attention to how these tasks are distributed across the agricultural season and the types of tasks for which men and women are responsible. In all the different agricultural ecologies, finding access to labor at certain points of the season is important, whether for weeding, hoe plowing, transplanting, bird scaring, or harvesting. As women tend to have access to slightly smaller collective labor sources from within the compound, they tend to negotiate these demands differently than men. Thus for women, and for men without access to extensive intra-compound labor sources, finding access to cultivars with different agronomic requirements is a key strategy for bringing in the harvest.

Ethnoecologies of Rice Production

In The Gambia farmers cultivate rice fields (*faroo*, pl. *faroolu*) in a number of different microenvironments. These include seasonally saline and freshwater swamps, the floodplains of the river basin, inland rainfed depressions, and the rainfed uplands (Carney 1991; Webb 1992; Nuijten 2005). Cultivation within these different hydromorphic zones, as in much of the West Africa Rice Zone, helps farmers spread their labor requirements across the landscape, thereby reducing demands put on labor at different times of the growing season (Richards 1985, 1986). Along the seasonally-saline stretches of The Gambia River, where Jenoi is located, the rainfed uplands and inland rainfed depressions enable farmers to begin rice cultivation before the salt is flushed from the lowland swamp by rainwater and freshwater tides. It is in these upland zones that women cultivate their rice nurseries (*kuyifoo*, pl. *kuyifoolu*) for transplanting into the swamp and where men and women cultivate short-season upland rice.

Gambian farmers use a number of emic categories to describe these production zones (Carney 1991; Nuijten 2005), at least some of which vary by locality (Webb 1992).[23] In Jenoi, farmers distinguished broadly between the rice production zones within the river basin (*baafaroo*, lit: river swamp) and the rice production zones in both sandy and hydromorphic soils of the uplands (*bantafaroo*, lit: outside the swamp). Within the river basin, farmers further distinguished between deep-water areas that receive the greatest inundation from daily river tides and those that—outside the height of the rainy season—only experience flooding with large monthly or bimonthly tides (*waamoo*). As the deep-water areas are generally closest to the mangrove forest, farmers referred to this area as the *mankoto* (lit: "at the mangroves"). The more

[23] The terms used to describe these zones vary throughout The Gambia. For example, near the coast, in some parts of The Gambia, farmers refer to the upland rice ecologies as *tandako* (Nuijten 2005). In Jenoi, farmers refer to this zone as *tinti kaŋ*.

shallow zones—those only flooded with the swelling of the rain-saturated river or the tides of the moon—farmers called *leyo kono*. These are not perfectly distinguishable ecologies, however, and farmers recognized a gradient between the deep-water zones and the shallow tidal zones. For example, women sometimes were only able to say definitively where a rice field was not: "well, it is not the deep-water zone," my friend, Mba Nyama, said to me about one of her paddies, implying that it was not exactly in the shallow tidal zone either (Table 3.1).

Table 3.1: Women's explanations of the differences between mankoto and leyo kono ecologies.

Leyo kono	***Mankoto***
The *leyo kono* has grass.	The *mankoto* has trees.
The early season rice varieties go in the *leyo kono.*	The late season rice varieties go in the *mankoto.*
Parts of the *leyo kono* crust over with hard mud in the dry season.	The *mankoto* does not crust over with hard mud in the dry season.
Salt sometimes builds up in the *leyo kono.*	Salt does not settle (in a year of good rain) in the *mankoto.*
The soil in the *leyo kono* is not as rich as the soil in the *mankoto.*	The *mankoto* is not bothered by the return of salt water that comes while the rice is still ripening.
Leyo kono rice does not have as much power as *mankoto* rice.	In years of poor rainfall, you can still farm in the *mankoto.*

In the uplands, farmers cultivated two types of rice plots. The first was located on hydromorphic soils that maintain standing water—sometimes at almost half a meter—during the rainy season (Figure 3.1). The second type of upland plot was located on sandier soils on upland slopes that were entirely rainfed. In other parts of the country, these latter upland rice zones are

referred to as *tendako* (Carney 1991; Nuijten 2005). In Jenoi, farmers sometimes distinguished between these upland zones by referring to the rice planted in the sandier soils as *tinti kaŋ* (lit: "on the river bank") rice, although this term was sometimes used to describe almost any rice capable of being planted and coming to harvest in the uplands.

Figure 3.1: Women pulling rice for transplanting to the lowlands. This rice nursery is located in one of the largest upland rain fed depressions in Jenoi, an area locally called *Kumandiŋoto*. In the dry season, the ground in this area is hard and dry. In the past, farmers said that this area was used strictly for upland rice fields rather than for nursery beds. Author on far right. Photo credit: Tad Brown.

Farmers planted a diversity of rice varieties across these different agricultural ecologies. During the 2010 season, I spoke with members of 63 different farming units in Jenoi. Of these, 55 (6 male, 49 female) were growing rice. All together, these farmers were cultivating a total of 54 different varieties, 30 of which were grown by only 1-3 farmers (see Appendix 5). It is likely that the actual number of rice varieties grown by all farmers in the village was higher, and with an even larger sample, many of the marginally cultivated varieties would probably display a wider distribution.[24]

Of the widely cultivated rice varieties, many were planted across multiple ecologies. For example, some of the latest ripening upland varieties, such as *Meeji wuleŋo*, were sometimes planted in the shallow tidal zones of the lowland swamps, particularly if women wanted an early rice variety for harvest but did not have access to an upland rice plot. Farmers also planted certain mid- and late-season lowland rice varieties in the gradient between the deep-water and the shallow tidal zones, thereby staggering their lowland rice harvest from the edges of the river basin to the start of the mangrove forest.

The Organization of Production

Mandinka settlements throughout both Senegal and The Gambia are generally organized by village (*sàateewoo*), ward (*kàabiiloo*), and family compound (*súuwo*) (Quinn 1971; Weil 1971).[25] In general, extended family compounds or *súuwo* are headed by the most senior male

[24] Many of the 30 varieties only cultivated by 1-3 farmers also represent varieties under farmer experimentation.

[25] Seniority within and between villages, wards and compounds is based one's patrilineal kinship, age, and length of residence. Generally the eldest male within a settlement's founding lineage is the administrative leader of the village, known in Mandinka as the *alkaalo* or *alikaalo*. The eldest male of the second-most senior lineage in a village is usually, although not always, the religious leader, or the *almaamoo.* The *alkaalo* is responsible for assigning usufruct rights to

within the extended family, although there are a handful of compounds in Jenoi that are headed by women. Usually this is the case when a woman survives her husband in death and all of her adult male children live elsewhere. Many compounds in Jenoi were multi-generational, with some home to as many as four generations. Figure 3.2 represents the kinship relations of the members of one three-generation extended family compound in Jenoi.

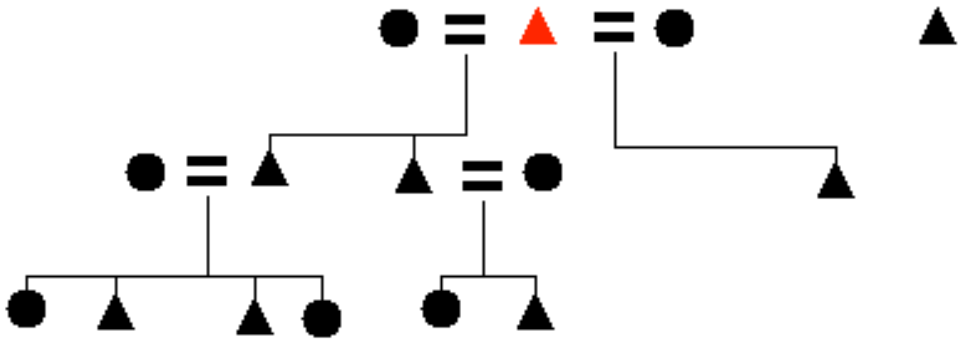

Figure 3.2: Kinship relations for a sample compound in Jenoi. This extended family compound was primary residence to the compound head (pictured in red), two of his wives (his third lived in a neighboring town), their adult male children, their two daughters-in-law, and their grandchildren. The adult female children of the eldest generation all lived at their husband's residences. The unattached man was the stranger, or guest, of the compound head. Figure made with Kinship Editor.

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village land, calling village meetings, mediating disputes (along with a council of elders), collecting taxes and fines, coordinating distribution of agricultural materials such as seed and fertilizer from state and non-governmental projects, and representing the village to the state. The *almaamoo*, on the other hand, is responsible for leading religious ceremonies and delivering sermons at the village mosque. In theory, village wards or *kàabiiloo*, are comprised of the extended family compounds of the patrilineal descendants of the village's founding families and their guests or "strangers." Each *kàabiiloo* is headed by the senior-most male descendant within the lineage who represents the *kàabiiloo* at the council of elders. In reality, this is all more negotiable than it sounds: In Jenoi, for example, *kàabiiloo* membership and composition has shifted over time and some hereditary positions have come to be held by people outside of the founding patrilineages.

Within extended family compounds, food production is organized into male or female labor groups or *dabadaa* (pl. *dabadaalu*). Food consumption, on the other hand, is organized into different cooking-eating units called *sinkiroo* (pl. *sinkiroolu*). A number of scholars have described *dabadaa* as the primary labor group for joint male labor within the household and the *sinkiroo* as the primary cooking and labor group for joint female labor within the household (Carney 1986; Nuijten 2005). In Jenoi, farmers described these inter-household labor groups somewhat differently. Instead of differentiating between *dabadaa* and *sinkiroo* based on male and female labor respectively, people distinguished between male and female *dabadaa* of a single compound. People described *sinkiroo* solely as cooking-eating units that include men and women (although women do the cooking). Here I use the definition of *dabadaa* and *sinkiroo* given by farmers in Jenoi.

For example, in the compound pictured above, there were three separate *dabadaa*: two female and one male. The male work group was comprised of all working-age men in the compound: the compound head, his three present adult sons, and his eldest grandson. Each co-wife of the compound head headed her own work group. The first pooled her labor with her two daughters-in-law. The second worked alone. However, the entire compound shared one cooking pot or *sinkiroo*, for which the women of the compound would take turns cooking.

It is possible that the differences in the literature on *dabadaa* and *sinkiroo* (Carney 1986; Nuijten 2005) reflect real changes in the ways that Gambians organize household labor. In fact, *dabadaa* appear to be a relatively recent social phenomenon, dating only to the 1950s when the collective labor forces of extended family compounds began to fracture into smaller groups (Weil 1973). Research suggests that during the latter half of the twentieth century wealthier compounds were able to maintain large labor pools better than poorer ones (Haswell 1991). It

could be that the way that women and men discuss *dabadaa* and *sinkiroo* in Jenoi is evidence of new twenty-first century permutations in this twentieth century institution. There are many signs that the size and composition of work groups continues to change. Today fewer and fewer young people want to become farmers. Increasingly young men and young women, if they are able, relocate to the city in search of educational opportunities and paid employment. In the past, a son's wife would have either joined the work group of her mother-in-law or would have formed her own *dabadaa* in her husband's compound. Today, if a young man moves to the city, his wife might remain in the village at his family compound, but sometimes she joins him, effectively precluding the replacement of labor within aging compound labor forces.

Depending on who is present in the compound, work groups may or may not possess more than one person and cooking-eating units may or may not be comprised of more than one labor group. The number and composition of *dabadaa* and *sinkiroo* in any given compound is quite fluid, often changing from year to year as people move away, elders retire, women marry into new households, or children join the agricultural work force. In the 2010-2011 farming season, for example, my research assistant's mother and stepmother decided to pool their labor into a single *dabadaa*. Like many other co-wives, they had—up to that point—each headed their own *dabadaa* and worked their fields separately. Previously, one woman would cook for the compound *sinkiroo* while the other was away at her rice fields. But with the arrival of a new daughter-in-law who assumed all of the compound cooking duties, the women decided it would be easiest to work their fields together and thus combined their labor.

Of the fifty compounds sampled in Jenoi through the original random sample and subsequent seed network sample in 2010 (Appendix 1), the majority of compounds contained one or two *dabadaa* (Figure 3.3). Generally, but not always, this represented a situation where a

compound possessed only one female and one male work group. Only six extended family compounds were home to two male work groups, and this was generally the case where two adult brothers lived in the same compound with their respective families but worked their own agricultural fields. No compound contained more than two male work groups, and quite a few (14) possessed no male work unit. The majority of compounds possessed one female work group, which reflects the greater frequency of single-family compounds and the tendency of co-wives to pool their labor. There was only one compound in Jenoi that possessed no female work groups, and 21 compounds that possessed two or more. In general, compounds tended to possess more female than male work units, as men may have multiple wives who sometimes form independent work units, and men are more likely to find non-agricultural paid work outside of the home.

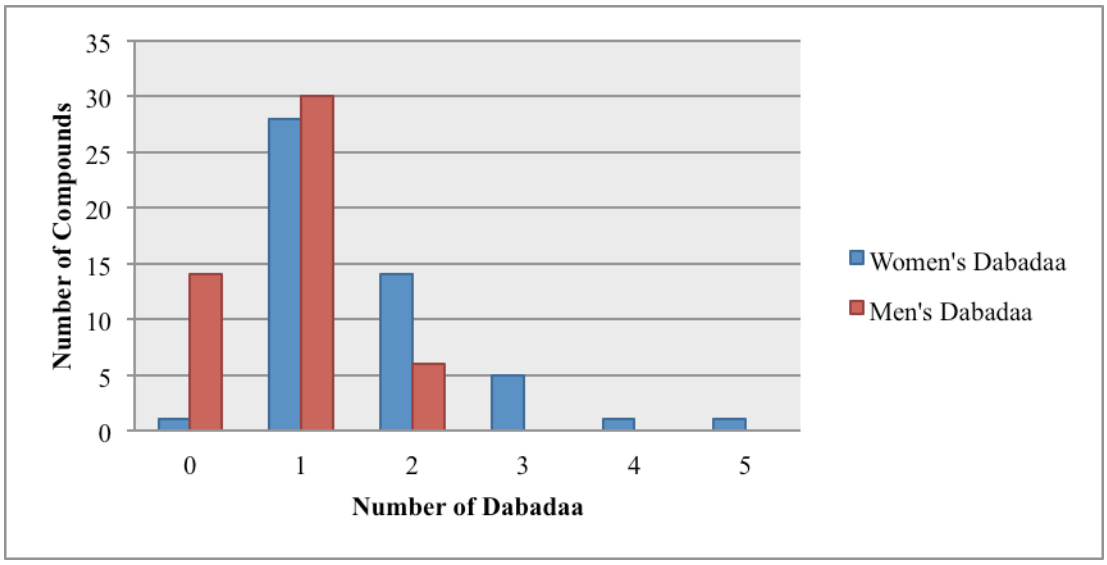


Figure 3.3: Relative frequencies of men's and women's *dabadaa*. Includes all *dabadaalu* for 50 sampled compounds in Jenoi.

Multiple work groups may or may not be part of one cooking-eating unit. Most compounds contained only one cooking-eating unit (Figure 3.4), which often fed the members of at least two work groups, one male and one female. The largest number of work groups present in any single compound was six, five of which were women's groups. All six of these work groups shared one cooking pot. The largest number of cooking groups in any compound was four. This was a case where one man and his four wives each had their own work group, yet each of the four women also headed her own cooking group. Their husband rotated his eating days through each of his wives cooking groups. Generally, each work group that shares a cooking pot will contribute food for cooking and, in some cases, money to purchase ingredients. In The Gambia—as in many parts of Africa (Guyer 1986)—the control of men's and women's incomes within compounds, between co-wives, and between junior and senior members of the compound

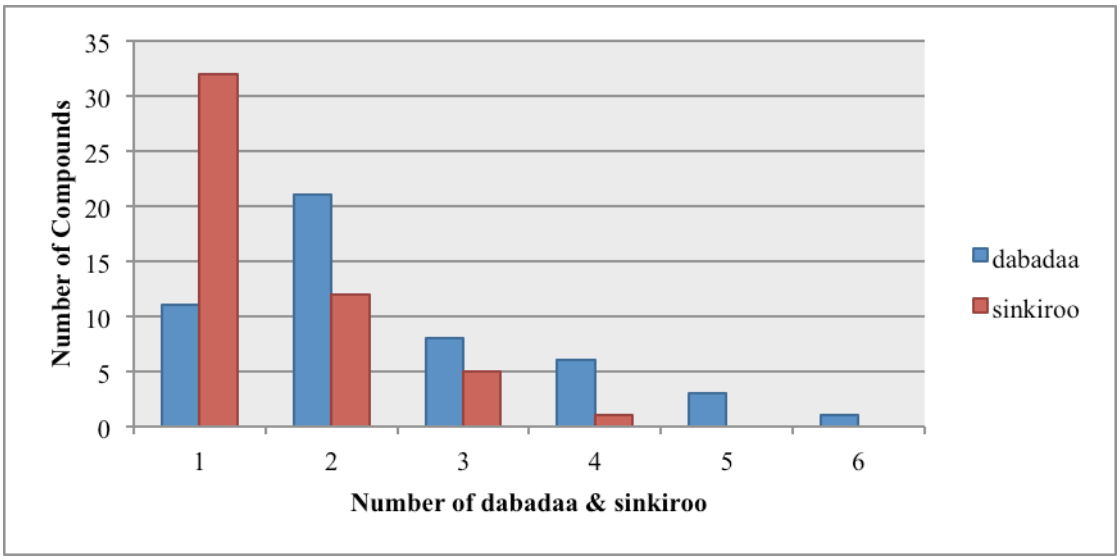


Figure 3.4: Relative frequencies of *dabadaa* and *sinkiroo.* Includes all *dabadaalu* and *sinkiroolu* for 50 sampled compounds in Jenoi.

is often kept separate (Dey 1981; Schroeder 1997).[26] Even if part of the same cooking pot, husbands and wives often have different responsibilities with respect to what they contribute to the household economy.

It is usually the case that one male or one female farmer is the primary agricultural decision maker for each work unit. This person is the one who coordinates the procurement of all seed stocks and makes major decisions regarding varietal selection and exchange of cultivars. This person is also usually the senior member of the work group, although there were some women's *dabadaa* where the junior member was also very active in managing seedstocks, varietal exchange, and bringing varieties into Jenoi from other parts of the region. In general, the presence of multiple decision-makers in one work group depended on the personal relationships between senior and junior members, the relative agricultural knowledge of each member, and the degree to which non-senior members engaged in varietal experimentation.

In general, the average size of men's labor groups in Jenoi is slightly higher than that of women's. Men's groups, on average, had 4.4 members (+/-2.5) while women's groups possessed only 2.4 members (+/-1.6). In effect, although there tend to be fewer men's work units than women's per compound, men tend to have slightly more access to labor from within the compound than women. For both men and women, smaller work groups can make mobilizing pooled labor for crop production at certain times of the season more difficult. For example, producing early millet (*sunoo*) is nearly impossible for male *dabadaa* that possess only a few members, because there is little labor available for the long hours of bird scaring required while the millet is ripening. Additionally, small work groups may have to choose between cultivating multiple species and instead focus their labor on only one or two crops. Among the sampled

[26] It is not uncommon, for example, for a man who owns a mango orchard to sell the crop in bulk to his wives, only for them to resell the fruit in small amounts at the local market.

compounds, only one male work group was cultivating millet, rice, and groundnuts. It was also the largest recorded work group in the entire village, possessing 17 members. In compounds where women's work groups are small, women may have to abandon the cultivation of rice varieties that ripen at times when other labor demands are high. This was the case for many women who tried out one of the two formally bred Nerica (New Rice for Africa) varieties disseminated by the Department of Agriculture in Jenoi. Many women liked Nerica 6, but because it ripens earlier than many other upland varieties, it needed to be harvested at the same time that women were busy transplanting rice in the lowland swamps. Many women simply did not have enough available labor to scare birds off their Nerica plots and transplant their lowland rice paddies.

The Shifting Geographies of Production

In Jenoi today, agricultural production is still gendered across space and, to some extent, by crop species. Despite the brief resurgence of millet and sorghum production during the latter half of the Sahelian drought, men in Jenoi have moved away from the production of the more drought-tolerant coarse grains. Depending on available household labor, some men work early millet (*sunoo*) in rotation with their groundnut plots. The cultivation of late millet (*sañoo*), however, has almost ceased entirely; only two farmers in a total sample of sixteen male *dabadaa* grew late millet the years 2010-2012, both of whom threatened to abandon it because of the crop losses caused by the parasitic weed *Striga*. The cultivation of sorghum in Jenoi has also ceased completely, although many men said that in the not-too-distant past they cultivated both of the sorghum types *kintoo* and *basoo*. Men and women both have also stopped cultivating *findoo*

(*Digitaria exilis*, a short season, upland grain) although many farmers recalled that they used to grow it as a way to reap an early grain harvest when the hungry season was most acute.

Although there are a handful of men in Jenoi who have been cultivating upland rice for many years, the recent dissemination of a number of formally-bred rice varieties—particularly the suite of new Nerica varieties—by the Department of Agriculture has led many men to adopt rice cultivation, most of which is intended for household consumption. My first year in Jenoi marked the second year of a government Nerica dissemination project. Access to early-ripening upland rice seed partially accounts for why so many men had recently begun to try upland rice production. It also accounts for why many of these men did not show up in the farmer seed network sample, as many obtained seed solely through the government program.

Of the six men interviewed in Jenoi who were working rice, three were growing only formally bred upland varieties. Two others were growing formally bred upland varieties and one or more lowland farmer's varieties. Only one man out of the six was cultivating any upland landrace varieties. Unlike the other men, he had been growing upland rice for many decades and took pride in the diversity of varieties that he maintained. In general, the men who worked rice in the lowland swamps often did so by hiring women's groups to plow, transplant, and harvest their fields. In these instances, men generally did not manage the seed stocks of their lowland rice varieties. Instead these men had to ask their wives about the varietal composition in their own lowland fields. On the other hand, men were much more knowledgeable about the landrace and formally bred varieties that they cultivated in the uplands.

Men's recent foray into upland rice production is not the first instance in The Gambia in which gendered production practices have proven far more fluid than the dichotomy between male cash crop/female subsistence crop implies. As I have already mentioned, men returned—if

only for a short time—to coarse grain production during the Sahelian drought (Webb 1992). In the administrative region of Wuli during the second half of the twentieth century women began to cultivate groundnuts as a means to generate cash income to purchase grain (Weil 1986). Likewise, Schroeder (1993) documented the rise of women's commercial gardening as a strategy to generate cash income during the last decades of the twentieth century, while Carney (1986) and Carney and Watts (1990, 1991) traced how men became involved in women's rice production in Jahally Pachar after the implementation of year-round pump irrigation projects.

Today, women continue to focus most of their attention on the production of rice for home consumption. Most of this work is carried out in the lowlands, although if women have access to land in the uplands, they may work one or more upland rice plots. One of the biggest changes in women's production in recent decades has been a shift in the geography of women's rice cultivation in the lowland rice swamps. Today over half (54.3 percent) of all sampled women's rice plots are located in the shallow tidal zones of the swamp, a little over a third (34.6 percent) are located in the deep-water zones, and a little over a tenth (11.1 percent) are located in the uplands. Farmers have almost two times as much land in the *leyo kono* under cultivation than they do in the *mankoto* (Appendix 6). But women explained that this has not always been the case. Since the 1980s the swamp roads that were rebuilt with the help of Freedom From Hunger Campaign (FFHC) have deteriorated. As a result, accessing rice fields in the deep-water mangrove zone has once again become more difficult, time consuming, and where women might have to cross a deep tributary to reach their rice fields, dangerous.

In response, many women have chosen to concentrate their lowland rice production in the shallow zones of the river basin. With the abandonment of many deep-water plots, women and others in town described how the mangrove forest has regrown since the 1980s. Often while

working in the rice fields, women would point towards the belt of mangroves separating the rice fields from the river and say, “I used to farm way over there.” Sometimes, women complained that even when they continue to work in deep-water areas, they do not have the time or the workforce to keep the mangroves at bay from year to year. Instead, the mangroves reclaim their rice plots, little by little. Women felt that the general move away from cultivating rice in the nutrient-rich mangrove zone has been problematic. During the Sahelian drought, it was the shallower reaches of the swamp that were the first to experience high levels of salinization.

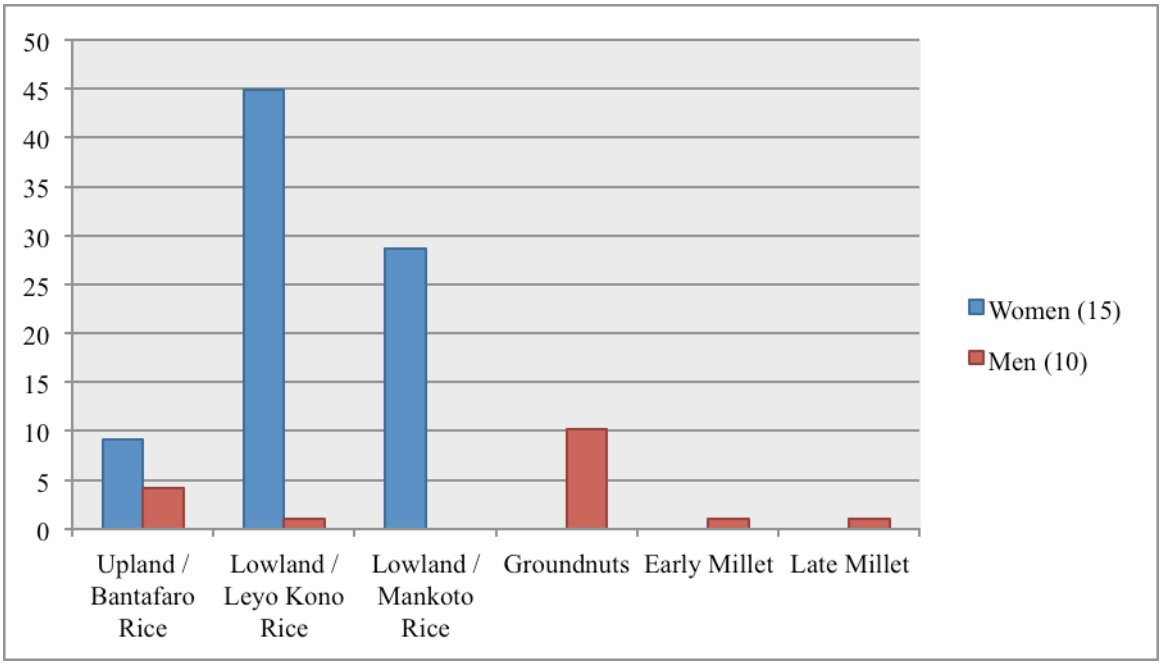


Figure 3.5: Percentages of surveyed farms (N=98) by crop, geography, and gender. The 25 randomly selected (15 women and 10 men from 16 households) *dabadaa* who were included in 2010-2011 farm visits were working a total of 98 farms. Of the men, nine were working groundnuts, only two were working millet, and four were working rice. Only one was working groundnuts, rice, and millet. Women worked between one and eleven rice plots each, (81 plots between 15 women’s work groups) whereas men generally worked only one or two much larger faro (5 rice plots between 4 men’s work groups). The average size of men’s rice plots is slightly larger than the combined average size of women’s plots, reflecting access to larger tracts of land and the capacity to work a larger land area effectively (Appendix 6).

Agricultural Seasonality and Mediating Demands on Labor

Farmers in The Gambia distinguish between four seasons. These include *sàmaa*, the rainy season; *kuncaamaaroo*, the period after the rains end but before rice harvest begins; *sanjaanoo*, the season of rice harvest when the days are hot and the nights are cool; and *tilikandoo*, when it is just hot all of the time. The agricultural year begins when the rains arrive sometime around June—although they used to come earlier—and finishes in rainless February when the last of the lowland rice is harvested, although many women engage in dry-season gardening between February and April or May (Figure 3.6).

The beginning and the length of the rainy season is determined by the northward movement of the Inter-Tropical Convergence Zone, which travels north from the Gulf of Guinea, carrying rainfall over the savanna and the Sahel. Historical and climatic records indicate that the rainy season in The Gambia is growing shorter and increasingly bi-modal (Webb 1992). The increasing periodicity of Gambia's rainy season makes planting the rainfed uplands more unpredictable, and as such, many elder farmers distinguish between *sàmaa* (the rainy season) and only *sàmaa* or *sanji fóloo* (the first rains), noting that just because the rains have started, the rainy season has not necessarily begun. During the 2011-2012 when the rains came and then "stood up" (*sàmaa loota*) one elder woman recalled that "in the past, people never planted at the beginning of the rains because they knew that the rainy season had not yet fully started. The earth is still hot [in June] and it kills the seeds if you plant them before the rainy season truly starts. Now people plant and their crops die."

Once the ground has softened with the full onset of the earliest rains, men begin to prepare their upland fields, women begin to prepare their rice nurseries, and both men and women begin to plow their upland rice fields. Men plow their millet and groundnut fields with a

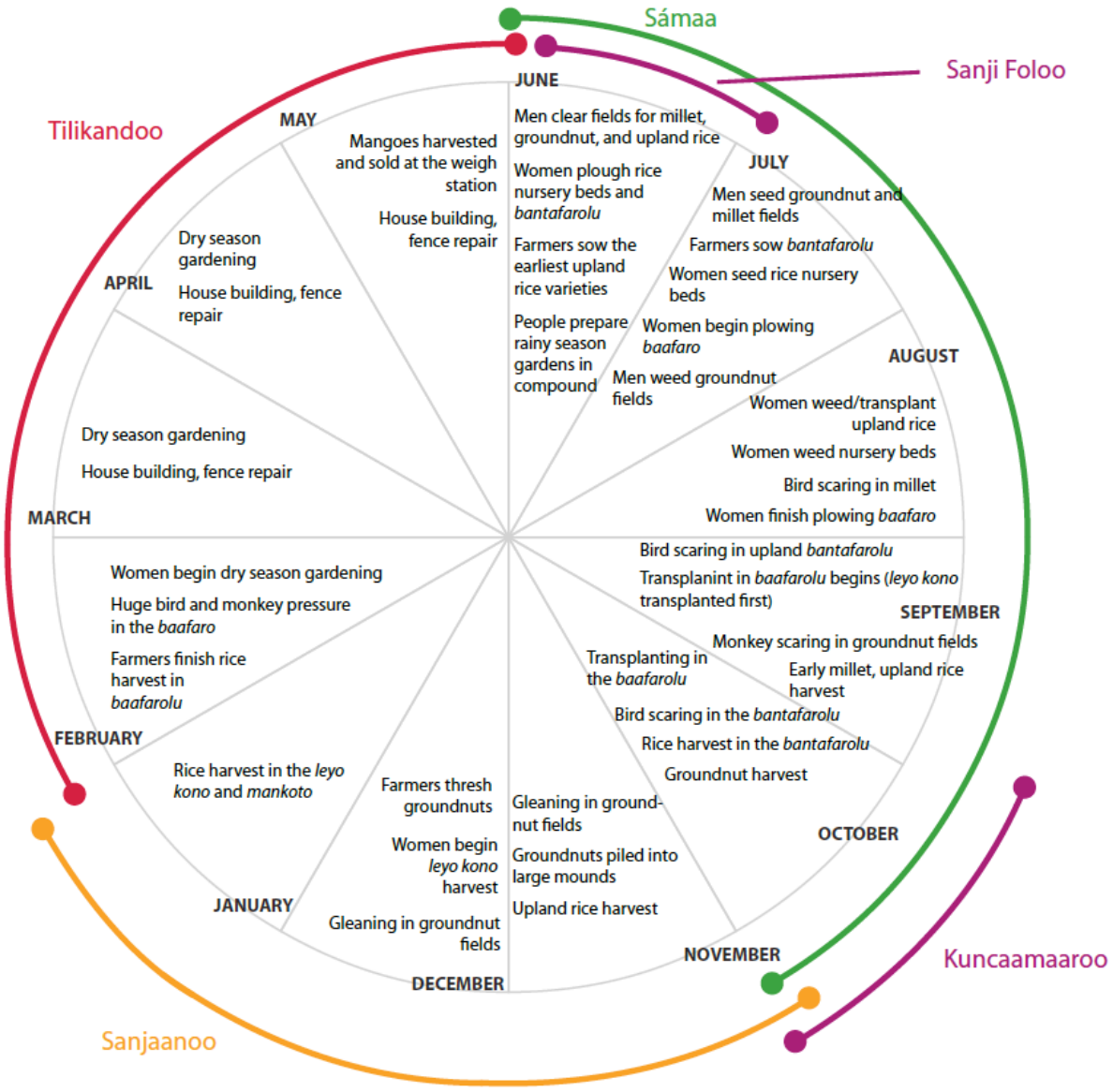


Figure 3.6: The agricultural cycle in Jenoi for the 2010-2011 season. Figure credit: Alston Chapman.

sine hoe hitched to either a donkey or a pair of oxen. Women plow their rice nurseries and *bantafaroolu* by hand with a *daboo*, a locally made iron blade attached to an angled handle made from the *bara* tree (*Combretum micranthum*). Increasingly, men and women both try to pay the Department of Agriculture or the district-wide Youth Organization to plow their upland fields

with a tractor. Where possible women also try to find a tractor or a power tiller driver to pay to plow their *leyo kono* (shallow zone) rice plots. This is precarious work, however, and has led to many a power tiller getting stuck in the thick mud of the tidal swamps.

If there are strong rains in June, farmers begin seeding their groundnut and millet fields and their rice nurseries in late June or early July. In Jenoi, men most often seed their upland fields, including their upland rice fields, with a seeder (Figure 3.7). Women, on the other hand, direct sow their upland rice fields or they may transplant it at a later date. With seeding done, women begin to cultivate the lowland swamps, which they plow manually with the *daboo* hoe. Most women do not finish plowing their rice fields until the end of August. Save for Wednesdays and the holy day Friday, for at least six weeks between the middle of July and the last weeks of August, women work day-in, day-out in the lowland swamps, preparing their fields for transplanting.[27]

In late July, men and boys begin weeding their peanut and millet fields: first between the rows of crops with a donkey and a plow and then within the rows with a small hand-held hoe called a *dabandiŋo*. In early August, women return to their rice nurseries, if there is time, to weed out other grasses that can smother the young rice seedlings. Not all women have time for this, and one common reason that women sought rice seedlings from other farmers to transplant was because their own rice nurseries were choked out by weed pressure. August is also the time to weed upland rice plots, particularly those that were broadcast seeded instead of transplanted. By the end of August, children—very often young boys, but sometimes young girls as well—have hung tarps or cloth in the millet and upland rice fields as a source of shade while they scare

[27] There is a taboo against doing agricultural work on Wednesdays in general, save for rice harvest when women work until the rice has all been cut. Fridays, the Muslim holy days, are prayer days. As such, women often only work a half-day on Fridays.

away birds that come to feast on the ripening grain. The sounds of clapping and singing intermix with the caws of startled birds, as stones shot by slingshot barrel through the air. Depending on the ripening times of the rice varieties planted, bird scaring in the upland rice fields can continue through mid-October.

Figure 3.7: A man's *bantafaroo*, planted with a seeder. Eight young boys can be seen weeding in the distance.

It is during this time too, that women begin transplanting in the lowland swamps. In 2010, just about ten days after the last women finished plowing their lowland swamps, women began to transplant rice into their lowland fields. Transplanting the lowlands in Jenoi is always

started on a Tuesday or a Sunday, in a practice called *leyosaŋo* whereby women will pull and transplant a very small bundle of transplants—perhaps only a handful—into their fields that are located in the shallow tidal zone before returning home for the day. Women say that if you begin transplanting on a Tuesday or a Sunday, the rains will be good and the rice will grow well. Transplanting in the lowlands continues through the end of October, during which time women head-port large bundles of transplants to their rice fields each day.

In mid-September farmers begin to harvest the earliest millet, *sunoo*, and by mid-October many of the earliest upland rice varieties—such as Nerica—are also ready to be harvested. In early October, men begin to harvest the earliest groundnut variety, *Burukusoo*, and in mid-October the late variety, *choppo*, is ready for harvest. By this time, the rains have mostly ended, although in 2010 there was a number of late rains that raised concern over whether or not mold would spoil the groundnut crop.

November is marked by continued upland rice harvest, gleaning already-harvested groundnut fields, and the guarding of large piles of groundnuts (*tiyatuŋo*) from itinerate livestock. By early November, men—sometimes with the help of women and children—have begun threshing the dried groundnuts in preparation for the opening of the commercial groundnut market right around Christmas (Figure 3.8). And from the start of December through the end of February, women—sometimes with the help of men and boys—harvest rice in the lowlands. Women's rice harvest and men's rice harvest are quite different chores, however. As I described in chapter one, women harvest rice with a small knife, cutting each panicle one-by-one until they have filled their fist into a single handful, or *farandaŋo*. Four *farandaŋo* are then compiled into a single bundle of rice, or *maanibuloo*. Men and boys, on the other hand, harvest both upland and lowland rice with a small, handheld sickle, which they use to cut handfuls of

Figure 3.8: A farmer threshing groundnuts. He and other members of his *dabadaa* had piled the dried nuts, leaves, and stalks into a *tiyatuŋo* a month earlier.

rice from the base of the stalk. Cutting each stalk with a knife is called *maani katoo*. Cutting bundles of stalks all at once with a sickle is called *maani káaroo*. Although women will sometimes do sickle-harvest themselves, in other cases they will have young men cut rice for them. Women almost only harvest rice with a sickle when they are short on time or group labor but the rice must be cut quickly because it is ripe. Women do not prefer sickle-harvest and say that it "spoils the rice," because it tends to cause shattering and breakage, leaving far more rice on the ground after harvest than cutting each panicle one-by-one.

Table 3.2: Description of the tasks involved in the production of groundnuts and rice. Whether or not men or women are responsible for each task is indicated in parentheses.

I. Steps in the cultivation of groundnuts:

1. Preparing the ground for planting, plowing and seeding (male)

a. *senoo*	clearing the land
b. *huroo*	plowing the field (with donkey and plow)*
c. *fiiroo*	seeding, done in rows, often with a donkey and seeder

2. Weeding (male)

a. *huroo*	weeding done between the sprouting groundnut rows before the plants are large in order to remove early weeds (with donkey and a plow)
b. *tiya bindeewo*	weeding done to remove weeds between plants or those left in the row after *huroo* (with *dabandiŋo*)

3. Harvesting and processing groundnuts (male and female)

a. *tiya soo*	loosening the soil and digging around individual plants to uproot them, turn the plants upside down to dry in the field (done with a *diboŋo*) (men)
b. *tiya kafuñoomaa*	after dry, piling the groundnuts into a mound or *tiyatuŋo* (done by hand) (men)
c. *tiya busoo*	beating the dried plants with a jointed stick or *tiyabusaraŋo* in order to break the groundnuts from the leaves and the stems (men)
d. *tiya feefeeroo*	winnowing the groundnuts and stems from the leaves by standing on a platform or the ground and letting the wind carry the dried leaves while the nuts and stems fall to the ground (men, sometimes women)
e. *tiya tomboŋ*	picking the groundnuts out from the mixed pile of stems and nuts (men and women)
f. *tiya karaŋo*	gleaning the groundnuts left in fields, but <u>not piled</u> into a *tiyatuŋo* (mostly women)

II. Steps in the cultivation of rice:

1. Preparing the seed for planting (female)

a. *maani suroo*	pounding the unthreshed rice in a mortar to separate the seed grain from the stalk (done for rice stored in tied bundles)

2. Plowing, seeding, and fertilizing the rice nurseries (female)

a. *kuyifi baaroo*	plowing the rice nursery (with *dabo* hoe)*
b. *jasiroo*	sowing the seed (by hand; some upland plots also sown directly by hand)
c. *katadaa seyoo*	covering the seed with soil (with *dabo* hoe)
d. *kuyifi bindeewoo*	weeding the nursery (by hand)
e. *jambandi fayoo*	throwing out fertilizer

3. Preparing/clearing rice plots (female)

a. *baaroo*	general word for plowing (done with *dabo* hoe)*

4. Transplanting rice seedlings to the river basin or to upland rice plots (female and male)

a. *jamba wutoo*	pulling out rice seedlings from nursery (women)
b. *tutuuroo*	transplanting (with a *lootoo*) (women and men)

5. Harvesting (female and male)

a. *katiroo / maani katoo*	cutting each panicle of rice with a small knife to be gathered into handfuls in the left hand, the thumb separating the top leaf sheath from the panicle stalk (women)
b. *sitiroo*	tying the bundles of rice together (women)

OR

c. *káaroo / maani káaroo*	cutting the rice at the base of the tillers with a small sickle (women and men)
d. *maani busoo*	threshing the grain, often done in the field (women, sometimes men)

*Denotes a task for which tractors and power tillers are increasingly sought. However, in many parts of the lowland swamps, it is impossible to plow with any heavy machinery.

In this sense, it is only for the few tasks that require large surges of labor that men and boys work in the lowland rice swamps and women help in men's fields. Plowing the lowlands, transplanting rice, weeding the uplands, scaring birds, and harvesting rice are all tasks that require large amounts of labor throughout the season and are thus subject to labor shortages (Haswell 1991; Carney 1986). Some of the labor for these tasks is often mobilized within the *dabadaa*. This is particularly true of bird scaring, which requires a human presence from sunup to sundown for many days on end and is thus a difficult task to hire out or negotiate over a long period of time. For many of these other tasks, however, farmers rely on a number of different social and agronomic strategies to mediate demands put on their labor and to complete certain types of tasks within a tight timeframe.

The Importance of Diversity

For women in particular, who cultivate a single species and who tend to have smaller domestic labor groups than men, finding enough labor to plow fields, pull transplants, scare birds, and harvest rice at the appropriate time can be a challenge.[28] To partially reduce labor bottlenecks, women rely upon ecological variability of rice production zones, varietal diversity within those zones, and a number of social institutions to ameliorate the demands put on their labor throughout the growing season. It takes farmers in Jenoi effectively three months to harvest the lowland rice swamps, and variance in ripening times helps women stagger their harvest to reduce major labor bottlenecks. Other varietal characteristics—such as the presence of an awn—also help reduce labor demands. Awns help reduce bird predation, and thus reduce the need for bird

[28] Recent research has shown that the cultivation of *Oryza glaberrima* has almost completely been abandoned and that *O. glaberrima* almost only appears in farmers' fields as wayward off-type (Teeken et al. 2012).

scaring as the rice ripens. Or, other varieties such as *latake*, whose stems do not dry out quickly when ripe, are less prone to stem breakage and thus give women some leeway in their harvesting schedules.

The importance of diversity for mediating labor is one of the major reasons that women cultivate multiple varieties. Mba Wonto, a farmer in Jenoi, once explained how she had gone to work at the field of a young woman who had only planted one variety across all of her *faroolu*. All of the rice in the young woman's fields was dry because she could not harvest it in a timely manner. Mba Wonto said it not only made harvest difficult, but much of the young woman's rice had dropped to the ground and spoiled. When Mba Wonto arrived home that day, she picked up a *maanibuloo* of the variety *trakitor wuleŋo*, a mid- to late-season rice that possesses an occasional awn, and took it to the young woman. Mba Wonto said she did this because "farmers should never work just one variety of rice." On average, women maintained a greater number of rice varieties than men who also cultivated rice (Table 3.3), and this was largely due to women's sole focus on rice production during the rainy season, differential access to labor saving technologies, and differences in access to pooled labor.

Table 3.3: Average number of varieties cultivated for rice, groundnut, and millet. Includes all varietal counts for all *dabadaa* in the entire seed network (N=73).

	No. Farmers Growing Rice	Avg. No. Rice Varieties Grown	No. Farmers Growing Groundnut	Avg. No. Groundnut Varieties Grown	No. Farmers Growing Millet	Avg. No. Millet Varieties Grown
Men (N=16)	6	3.3 (+/- 2.7)	14	1.4 (+/- 0.8)	3	1
Women (N=57)	57	6.9 (+/- 2.6)	0	0	0	0

Although farmers maintained far fewer groundnut and millet varieties, labor constraints also influenced men's selection of groundnut and millet cultivars. There were only five different groundnut varieties grown in Jenoi. These varied by ripening time and by growth habit. Of the late groundnut varieties, farmers said they tended to be easier to harvest, but needed to be harvested all at once because they ripen at a time when the ground is dry and only getting dryer. Therefore single men or men with small household labor pools often chose to plant varieties of groundnut that ripened early, such as *Burukusoo* or *dessansisso*. This was because early varieties ripen before the ground is completely dry, making it possible to harvest the nuts in small amounts. Because early varieties like *dessansisso* could be harvested gradually, it reduced the labor pressure to get large tracts of groundnuts harvested all at once. Likewise, unlike early millet (*sunoo*) that is awnless, late millet (*sañoo*) possesses awns that help deter bird predation. For men in Jenoi who had access to only small domestic labor forces, *sañoo* was thus an ideal crop choice, save that is highly susceptible to losses from the parasitic weed *Striga*. One man with the occasional help of his two young sons, could no longer effectively manage *Striga*, chose to leave millet cultivation altogether rather than grow *sunoo*. He shifted all of his efforts to the production of groundnuts, keeping only a small garden-sized plot for his *sañoo* patch. In this sense, crop and varietal selection helped mitigate the constraints on labor when assistance was difficult to mobilize.

As I have already mentioned, one way that farmers, particularly women, attenuate the demands put on their labor throughout the season is by cultivating rice fields across different ecologies, which enables them to maintain a diversity of rice varieties with different characteristics, particularly different ripening times. Having access to land across different ecologies, however, might not be an option for many farmers. In The Gambia, land is often

managed and owned through families, where rights of ownership are held by the families or persons who first cleared or settled the land (Sarr 2009). As these rights often, though not always, pass through lines of patrilineal descent, this means that the founding lineages of a village are often the largest landholders. Likewise, strangers quite often gain usufruct rights to land through their hosts and the elders of the *kàabiiloo* of which they are members (Sarr 2009). In Jenoi, there were a few cases where men who were strangers had cleared parcels of land and thus could claim them as their own, but more often, they accessed land through their landlords and or sometimes, a close friend who was also a landowner.

Although some women own their own lowland rice plots by virtue of having cleared the land themselves, having inherited a plot from a parent, or having been gifted the land by another, more often women gain use-access to land through their husband's families, through her and her husband's hosts within the village, or through some other agreement with a landowner in town. If a women's husband is a "stranger," she may only have access to land through her host, although if she herself is not a stranger, she may have access to land through her father and mother. But usufruct rights to land can be uncertain over the long term. As men decided they would grow upland rice, for example, many women arrived at their *bantafaroolu* to begin plowing their fields only to find that the men who had lent them the land decided to cultivate it for themselves. In cases where women only have access to land in a single hydromorphic zone, being able to diversify the rice varietal composition within their plots through social access to seed was particularly important for managing the labor demands of labor-intensive agricultural tasks.

Being able to access varietal diversity was as equally important as maintaining diversity in the field. During the 2010-2011 planting season, 48 percent of all 108 recorded incoming rice

seed transactions were for the acquisition of a new variety. Only 41 percent were for the replacement of varieties already cultivated by the farmer, and 11 percent—including all incoming groundnut transactions—were for the replacement of an entire seedstock. Farmers sought replacement seed because of varieties lost to drought, bird predation, or poor storage in the previous year; because of germplasm lost in the nursery bed due to drought or weeds; and because of undesirable changes in the farmer's own seedstock. Women, who relied on greater infraspecific diversity and who thus sought out new varieties more often than men, tended to have a greater number of exchange partners and take part in seed transactions more than their male counterparts (Table 3.4). Differences between the average number of exchange partners and the average number of seed transactions for women were due to cases where women exchanged germplasm—either seeds or rice transplants—multiple times with the same person over the course of the season. Women would often seek out others with whom they had exchanged seed in the same season when their rice nursery beds were destroyed by weed pressure or poor rainfall. This was generally not the case with men, who did not tend nursery beds and thus did not trade in rice transplants.

Table 3.4: Gendered differences in number of seed transactions. Includes all reported transactions for every farmer (N=75) in the entire seed network.

	Average No. Exchange Partners	Average No. Seed Transactions
Men (N=16)	2.5 (+/- 1.8)	2.5 (+/- 1.8)
Women (N=59)	6.2 (+/- 3.4)	6.5 (+/- 3.6)

Finding access to labor

Beyond the labor provided by members of a *dabadaa*, there are a number of labor arrangements that people use to mobilize assistance from other members of the compound and other members of the community. In her description of labor relationships in The Gambia, Carney (1986) differentiated between reciprocal and remunerated labor relationships.[29] Similarly, Linares (1992), in her work on rice farming in Casamance, distinguished between associative and obligatory labor relationships. In Jenoi, women in particular rely on a diversity of reciprocal and remunerated labor arrangements that may be undergirded by existing social obligations and simultaneously generative of new associations. Sometimes the labor and other things exchanged in these relationships are transferred through payment, sometimes through gifting, sometimes through reciprocation. In Jenoi, these relationships support and foster pathways of seed exchange at the same time that they provide one of the most common means through which farmers learn about, discuss, and debate the histories and characteristics of crop varieties (Weil 1973).

There are many types of labor arrangements upheld by certain social obligations, of which work in a *dabadaa* is perhaps the most obvious. Other arrangements include i) work provided by men to their in-laws as part of a marriage arrangement; ii) work done by a strange farmer for his landlord or host; iii) work done by Quranic students for their teacher; iv) work provided by a woman to other members of her matriline, such as the assistance that a married

[29] The reciprocal labor arrangements that Carney identified include i) mutual assistance among friends and relatives; ii) inter-household work groups; iii) labor obligations to in-laws; and iv) labor carried out by students of the Quran on their teacher's fields (1986: 246-247).

woman might provide her mother and vice versa; and v) work—or assistance in mobilizing work—provided by husbands to their wives (Carney 1986).[30]

There are three major ways that *dabadaa* and compounds coordinate large amounts of labor in order to complete agricultural tasks within a short period of time. For a number of reasons related to both geography and men's access to a cash economy, men's work has disproportionately benefited from access to labor-saving farm implements such as tractors, seeders, draft animals, and sine hoes. Women's work, on the other hand, often necessitates large inputs of manual labor for plowing the rice fields, transplanting lowland rice, and harvesting rice. To accomplish these tasks, a woman, her *dabadaa*, or sometimes an entire compound will coordinate large work groups. These include i) the scheduling of a *kàfoo* group, ii) the coordination of a *kiilaariyaa* group, and iii) the organization of close kin, family, neighbors, and friends into a less formal work group, or *baarakiiyoo*.

Kàfoo groups are associations of women of a single age set, or sometimes in the case of youth groups, young men and women of a single age grade. *Kàfoo* literally means "age set" and although adult men are recognized within a specific age grade, they are not involved in *kàfoo* labor. Members of a *kàfoo* (pl. *kàfoolu*) can organize for farm labor, but they also might convene for the sake of activities like comedic theater or savings groups. There are two major ways that *kàfoo* groups are enrolled into agricultural work. In the first instance, a woman who is a member of a *kàfoo* group will organize her fellow *kàfoo* members to come to her fields for a work day. In these cases she pays the *kàfoo* a set amount of money, in addition to providing lunch, kola nuts, juice and cool water during the day of work. All *kàfoo* members who do not come to work on

[30] Husbands might help with the cost of a large work group, for example, or, in cases of wife inheritance or *kundandoo*, a husband who lives in another part of The Gambia might send members of his compound to assist his new, often more elder, wife with her farm labor.

that day must pay a small fine to the group. All the money paid to a *kàfoo* over the course of a season is pooled into a group fund that will be used to pay for a group activity, to purchase of items to be shared among the *kàfoo* members, or sometimes to buy a gift for *kàfoo* members during marriage and baby naming ceremonies.

In the other instance, a woman or man will hire a *kàfoo* group to perform a specific task such as plowing, weeding or transplanting on rice, millet, or groundnut fields. In these cases, the *kàfoo* group in question is often a youth group that wants to raise money for a specific purpose. For more difficult skill-dependent tasks, such as women's rice harvest, women's *kàfoolu* might be hired. The few men who work large plots of land in the lowland rice swamps often hired women's *kàfoolu* to plow and harvest their rice.

In a *kiilaariyaa*—which literally means "spreading the news"—groups are coordinated for big tasks such as transplanting the majority of a compound's rice fields in one day. In these instances, multiple *dabadaa* within a compound and sometimes multiple compounds within a single lineage might come together to host the work party. The women who want the work done generally request assistance from close neighbors or kin in "spreading the news" by passing out small candy to the village youth with information on the date, time, and location of the work party. On the day of the event, the compound hosting the *kiilaariyaa* must provide breakfast, lunch, water, candy and cigarettes to those who come out to work. The host will also give gifts of cloth, outfits, and shoes to the women who helped coordinate the event.

In other cases, women coordinate a group of close kin, other members of the compound (including co-wives who are in a different *dabadaa*), neighbors, or close friends to provide mutual assistance on farm tasks throughout the season. These are called *baarakiiyoo* groups and they usually include women of different skill levels and age sets. It was through a *baarakiiyoo*

group that Mba Wonto had learned that the younger member of her group had only planted one rice variety, which, as I mentioned, she took quick measures to remedy for the next season. In some instances, women may rotate their work on different fields, and the person who receives the labor is responsible for providing lunch, kola nuts, juice, cool water, and even, in some cases, payment of twenty-five dalasi per person.[31] In other instances, this work is not ever remunerated with cash, but is justified as obligations between kin or close friends. *Baarakiiyoo* groups have long been a way for older, more skilled farmers to share knowledge with younger, less experienced farmers (Weil 1973). Participation in both *baarakiiyoo* and *kàfoo* groups were also ways that women learned about new varieties, and it was not uncommon for women to request seed from other members of these work groups after having worked the variety in another farmer's field.

Finally, there are two other major forms of itinerate labor tapped by women for agricultural tasks requiring large labor inputs. The first includes paying young village men to transplant rice in the lowlands or to harvest large swaths of rice with a hand-held sickle. The second includes hosting women from other villages who come to help during rice harvest. During transplanting season, the population of young men in the village swelled as urban-dwelling youth returned from the city to help their families with agricultural labor, and perhaps, make some cash for hire on other women's farms. Women—especially those who lived in compounds with few young men and who did not have the money to hire a *kàfoo*—would often pay boys twenty-five dalasi per bundle to transplant rice seedlings.

In the other case, it is common to see more senior women come to visit friends and family for long periods of time during the harvest season. They often work on the fields of their hosts and of other women in town, for which they receive lunch and some of the *maanibuloo*

[31] In 2010, 25 dalasi was equivalent to a little less than one US dollar.

they helped to harvest. This is sometimes referred to as *sanjaanidanoo* or "begging for the harvest," and incidentally, most women treated my participant observation in their rice fields as a form of such labor. Not all forms of *sanjaanidanoo* included labor-time, however. *Sanjaanidanoo* was also used to describe the practice whereby women who had had their *maañoobitoo* (wedding celebration) during the previous year went compound-to-compound during the rice harvest season requesting gifts of rice bundles.

Labor, Production, and Seed Transactions

The history and transformation of production along the middle stretches of the Gambia River has come to shape the gendered relations of seed networks and the moral economy through which farmers practice and understand these very transactions. Likewise, current production practices in Jenoi influence the ways that people exchange and access crop germplasm. The practices of varietal innovation and exchange that I describe over the next two chapters involve mostly women and involve mostly rice. Given the sheer diversity of rice varieties, the importance of diversity for meeting the labor demands of different tasks, and the biology of rice reproduction, it is perhaps not surprising that most seed transactions involved rice. At the same time, the social institutions that women use to mobilize labor to cultivate rice provide important pathways through which women learn about and access new varieties. For many reasons related to available household labor and access to technologies, men do not organize their labor in the same way.

As I will discuss in the chapters to come, the commercialization of groundnuts has left its mark on seed transactions. Between rice, millet, and groundnuts, the only sales of seed within the farmer seed network involved sales of groundnuts. While to some degree this is the result of the

nature of what was being transacted (groundnut farmers sought entire seedstocks, while rice farmers most often sought varieties), men and women located value and meaning in seed transactions in somewhat disparate ways. Engaged in different types of production economies, men and women approached the question of the morality of various types of seed transactions through different subjective lenses. These slight differences in how farmers made sense of exchange, however, did not influence how farmers discussed rights to seeds, a convergence, I argue, that challenges simple distinctions between commercial and gift transactions (Bloch and Parry 1989), but which also points to the power of new economic realities to shape, and also be reconstituted by, existing epistemologies of economic practice (Tripp 2006). Perhaps more importantly though, such a convergence raises questions about what it is that people are doing when they gift, exchange, loan, or sell seed.

Before turning to farmer-farmer seed transactions, however, I look next at the question of how farmers in Jarra West understand the labor of humans and nonhumans, individuals and collectivities that is integral to crop varietal innovation. It is in the ways that these various forms of labor intersect with what Amira Mittermaier has called "religious ethics and divine economies" (2014b: 275) that farmers claims to seeds and crop germplasm begin to take shape. Reminiscent of Hegel's (2008) emphasis on alienation in making property social effective, rights to seeds, framed as rights to give, emanate from the obligations emergent in divine gifts from God at the same time that they convey a certain type of power—or opportunity—to shape oneself and the social relationships that might be built around future transactions.

CHAPTER 4

DO JINN THROW RICE? COSMOLOGIES OF CROP INNOVATION AND THE CULTURAL POLITICS OF INVENTORSHIP

Dukuti wo le ka dakati bondi
In order to get something good, you must give something good –Mandinka proverb

On a hot, humid day in July 2011, I went to visit a friend at her home in Jenoi. We began to talk about the origins of unique off-types, which sometimes emerge in farmers' fields. Off-types are plants that have different physical or agronomic characteristics from the parent material in which they are found. For example, in rice they may be slightly taller or shorter, have a different hull color, or a slightly different ripening time than the population in which they are found. It is not uncommon for farmers to have admixture in their seed and readily point to off-types in their fields. In Jenoi, this is most common with rice, but it does happen with millet and groundnuts. Quite often these off-types are varieties that farmers already have, that they used to work in the past, or that they know but have never worked (Nuijten 2005). Every so often however, a farmer will come across an off-type in her field that she has never seen before.

Sometimes while harvesting rice, I saw women find such varieties. At first what would usually ensue was a lively debate amongst all the members of the *baarakiiyoo* or *kàfoo* group as to what known variety it might be. If the variety was known—and if it was a variety that the woman who owned the rice field wanted—she would cut it and set it aside for seed. In fact, the selection of known off-types, women said, was one way to get access to a desired variety without having to request seed from another farmer. Sometimes too, if the off-type was unknown and

was “beautiful,” women would cut it and set it aside for seed, explaining that it might become a excellent new variety (Figure 4.1).

Figure 4.1: A farmer’s selection of an unknown off-type. On the left is the known rice variety *nukuro* and on the right are two handfuls of an unknown off-type (right) that a farmer cut from her *faroo* to save for seed. Note the longer grain, the darker hull color, and the occasional awn on the unknown variety.

That day in July, while sitting underneath my friend’s mango tree, I asked her from where these unknown off-types originate. She said “this happens with rice—when you broadcast seed (*sari*) in your rice nursery, there are other “throwers of seeds” (*sarililalu*) who have different varieties that they throw into the rice. It happens that way and you find it in your field.”

When I asked her why it is that *sarililalu* throw these off-types into farmers fields, she said, "it is only because the affairs of human beings are sweet to them!" During my time in Jenoi, farmers repeatedly explained that it is often *sarililalu* who are responsible for bringing these new off-types to farmers. *Sarililalu* is a Mandinka moniker for jinn, spirit-like non-humans who, as explained in the Quran, are part of God's creation. With these gifts from jinn, some farmers—though not all—go about "organizing" new rice varieties. Farmers' stories about off-types, however, were not merely accounts about how phenotypic variation emerges in farmers' fields. Rather, the origins of off-types were just the first chapter in a much bigger, more complex story about how new crop varieties come into being—agronomically, socially, and spiritually.

Here I explore the ways that Gambian farmers in Jarra West discuss the process of varietal innovation. My attention to the cosmological underpinnings of innovation serves as an entry point into other ways of thinking about creative agency and ownership in discussions about the privatization of crop germplasm. I argue that not unlike the power of stories told about inventorship in justifications for intellectual property, the stories that Gambian farmers tell about varietal innovation reflect broader cultural conceptions of labor, value, and personhood. In the realm of intellectual property, ideas about labor, value, and personhood are intimately linked to the ways that the rights and claims of innovators are framed under the law. For farmers in The Gambia, the meanings of these domains are also central to claims-making: they shape local conceptions of who takes part in varietal development, the meaning that such creative acts produce, and the types of social recognition granted to those who labor to bring new crop varieties into the social world, all of which comes to bear on how farmers articulate the rights of innovators, and broadly, rights to seeds.

While farmers in The Gambia recognized that they and others regularly engaged in "bringing out" new varieties, farmers explained this process and the rights it entails in ways very different from the theory of innovation central to intellectual property law. Instead, farmers described varietal innovation as something like a process of varietal emergence (Haraway 2003; van Dooren 2008), an ever coming-into-being that involves new and existing crop varieties, networks of human and non-human actors, the effort of both individuals and collectives, and gifts and forward gifts. Here, gifts of seed pass from God and jinn to the hardworking and blessed, who then, for the sake of the new variety and for the gift, must pass it along to other farmers. Much has been written on the imperative of passing along gifts from God in Islam (Hanretta 2009; Mittermaier 2014a, 2014b). In Jarra West, rights to seed, framed as "rights to give" emerge, at least partially, out of this "first" gift from jinn and God. Yet wrapped up in narratives of rights are also hints of obligations that are rooted in certain types of relationalities. The giving, exchanging, and in some cases selling of seed fulfills something for and returns something to the giver.

Within this network of distributed innovation, farmers discuss the benefits that return to innovators in terms of having an excellent variety to share with others. In turn, such gifts are met with reward from God (*baraajoo*), the manifestation of divine grace (*baraka*), and the possibility of "making one's name famous." It is through naming, renaming, and the ability of varieties to amass a number of sometimes-conflicting histories that society comes to recognize the agency and personhood of various individuals. Naming serves as one way, then, that crop varieties might take on some degree of inalienability by distinguishing those individuals who helped bring new cultivars into being (Weiner 1985, 1992). If crop varieties are made inalienable through naming and stories, it is through their alienation and exchange that people also bring themselves, their

relations, and the recognition of the fruits of their labors into being (Robbins 2006). Thus where intellectual property establishes rights to exclude as reward for developing novel crop varieties, for farmers in Jarra West the benefits of innovation are realized, ultimately, through acts of inclusion. By following the meanings farmers attribute to the creative labor of innovation, I consider how acts of inclusion emerge out of ways of understanding rights and claims to seed that challenge Western ideas about the necessary limits of exclusivity and relationality in standard models of property and intellectual property.

The Politics of Inventorship

Just exactly what counts as "innovation" in the fields of science and law has helped define what counts as creativity and, ultimately, the types of property rights and socially-recognized claims that innovators might make to their work. In recent decades, research has documented the various ways that farmers innovate and experiment with crop diversity (Richards 1985, 1986; Zimmerer 1991; Rhoades and Bebbington 1995; Brush 2004; Soleri et al. 2000; Longley 2000; Longley and Sellu-Jusu 1999; Nuijten 2005, 2010; Badstue et al. 2007; Teeken et al. 2012). In the case of Africa, this work has repeatedly challenged what Sara Berry identified as the longstanding tendency to treat African farmers as backward, irrational, and mere "imitators of foreign innovations" whose "indigenous social and political institutions are widely regarded by Western economists as impediments to innovative behavior" (1974: 84). Studies of farmer innovation have thus helped question models of social and economic development that placed Western models of rationality, creativity, and science at the pinnacle of economic and environmental decision-making (Rhoades and Bebbington 1995).

With the internationalization of intellectual property law in the 1990s, the question of innovation took on new importance. As biological resources became the potential sites of new capital accumulation, just exactly who was innovating and at what point innovation occurred became crucial to assigning rights to and benefits in new forms of biological capital (Hayden 2003a). In the ways that what counts as "innovation" makes the cut between discovery and invention, nature and culture, tradition and creativity, it has also come to define what registers as property under intellectual property law. Rosemary Coombe (1998, 2003) has pointed out that tropes of invention, creation, discovery, and novelty are central to the "cultural politics of authorship," a political economy of assigning credit and creativity that has helped legitimate the internationalization of intellectual property and the property claims of a few. Additionally, Coombe has noted that it was this "political economy of authorship" that gave new consequence to "the drive to represent local peoples' knowledge and practices as innovative works—forms of intangible or intellectual property—integrally related to an indigenous identity or a 'traditional lifestyle'" (2003: 285).

In this sense, research on farmer innovation has forced a shift in whose innovation is recognized in debates over both agricultural development and intellectual property (Richards 1985; Brush 1996b; Cleveland and Murray 1997). Much of this work has explored on-farm experimentation in a language that agricultural development and international law understands, thereby showing how farmers, as breeders of new crop varieties, are responsible for the development of immense *in situ* agricultural diversity (Harlan 1992). Research on farmer experimentation has pointed to the ways that farmers understand and manage genetic variation and heritability (Bellon 1996; Richards 1986, 1996b); how they understand correlations between genotypes and diverse agricultural environments (Zimmerer 1991; Cleveland et al. 2000); how

they select between varieties (Brush et al. 1981; Bellon 1996; Lacy et al. 2006), and how they consciously and unconsciously manage hybridization (Nabhan 1989; Nuijten 2005; Nuijten and Richards 2011).

Attention to farmers' role in varietal development has documented both farmers' selection of off-types and mass selection for specific varietal characteristics within existing populations (Louette and Smale 2000; Soleri and Cleveland 2001; Nuijten 2005). Much of this work has explored farmers' theories of trait heritability and how these theories influence selection practices (Cleveland et al. 2000; Louette and Smale 2000). At the same time this research has pointed to the cultural, social, and spiritual values that undergird the selection and maintenance of new crop diversity (Nabhan 1989; Zimmerer 1991; Brush 1992; Richards 1996a; Cleveland and Murray 1997; Nazarea 1998, 2005; Longley 2000), and has thus been central to the development of participatory varietal selection, participatory plant breeding and collaborative plant breeding methods (Whitcombe et al. 1996; Cleveland et al. 2000; Soleri and Cleveland 2001; Sperling et al. 2001; Almekinders and Elings 2001).

As Thom van Dooren has pointed out, research on farmer innovation has in many ways been "an attempt to find more equitable and honest ways of characterizing the contributions of various agencies in the coming-into-being of plant diversity" (2008: 688). At the same time, van Dooren has voiced concerns about the degree to which such efforts have offered an ontological alternative to the way that innovative activity is framed under intellectual property law: More people are now recognized as innovators, but bigger questions of what innovation entails, who or exactly what is involved, and how it happens remains unchallenged. Instead, van Dooren suggested that scholars rethink the process of innovation—whether in the lab or in a farmer's field—as a process of "emergence," one that "understands seeds as ongoing projects in multi-

fariously agentic networks of becoming" (2008: 289; see also Haraway 2003). Such an undertaking requires a shift in the ways that what counts as "innovation" is framed in the first place by repositioning formal plant breeding within distributed social and biological networks (Nazarea 1998). It also requires rethinking the agency of non-human actors, individualities, and collectivities involved in the process of bringing new crop diversity into being.

Along similar lines, I think that there is a need to pay attention to how different peoples understand the process of varietal innovation. In studies where attention is given primarily to the degree to which farmers' selection practices are commensurate with biological models of plant breeding, farmers' beliefs about innovative work and their innovative labor-action are pulled apart—the "latter quantified and qualified by Western empiricism" (Povinelli 1995: 509). The failure to study farmers' understandings of innovation produces a type of translation that favors Western concepts of what counts as innovation in the first place—a reconfiguration of the "burden of legitimacy" (Nazarea 2006: 322) that does not account for the ways that innovation, as it is variously conceived within intellectual property law and agricultural development, is also wrapped up with cultural notions of personhood, labor and property. In this sense, research on farmer selection that gives greater attention to the cosmological underpinnings of experimentation could offer insight not only into why people innovate and how they think it happens, but the types of value, meaning, and rights that creative acts entail (PRATEC 1991; Millar 1993).

Attention to beliefs about innovative work is important for discussions of property because the ways that people make sense of the actions (creative labor, spiritual acts, economic transactions, and mundane work) involved in the selection and maintenance of crop diversity often frame broader claims to resources (Zerner 2003; West 2005; Brosius 2006) and shape

rationales of ownership (Strathern 1999). Even intellectual property, situated in notions of personhood epitomized by Locke's possessive individualism, relies upon very specific interpretations of labor and human motivation to justify claims to the products of intellectual work (Sherman and Bently 1999; Fisher 2001; Macpherson 2011). Attention to how farmers and indigenous peoples make sense of varietal innovation thus provides a way to begin to think about how farmers understand and assign value to creative labor, how they recognize human and non-human agency in such acts, and how they connect acts of innovation to broader claims of rights and access (Cleveland and Murray 1997). Throughout this chapter, my attention to varietal innovation is not a matter of whether or not farmers in The Gambia are "innovating" in any sense that can be verified by models of formal plant breeding (which they are), but how farmers say that varietal innovation occurs: For it is in the stories humans tell about personhood, labor, and human motivation where the jural realm of rights and obligations begins to take shape.

In efforts to bring attention to the link between varietal innovation and farmers' rights under the law, it is sometimes argued that indigenous and farmer innovation is "place-based," premised on "cycles of innovation dependence" (Drahos and Frankel 2012: 17-22), or primarily a "collective effort" (Salazar et al. 2007; Brush 2007b). Such descriptions, however, can overemphasize the boundedness of diverse innovation practices at the same time that they elide the ways that individual farmers articulate claims within different contexts. Efforts to classify "indigenous" or "farmer" innovation as one way or another may invoke some of the very dichotomies that emerged in debates over indigenous knowledge and intellectual property in the 1990s (Agrawal 1995; Strathern 1999; Anderson 2009). While perhaps more easily moldable to policy recommendations about what type of existing intellectual property model best fits farmers' needs, these prescriptions tend to generify culture(s) through the "creation of structures

of common difference" (Errington and Gewertz 2001: 511), which has very real consequences for people, their treatment under intellectual property law, and the degree to which the law itself is forced to struggle with dilemmas of representation (Anderson 2009).

For farmers in Jarra West, varietal innovation necessitates a mixture of collective effort (from humans and non-humans) and the labor of some very hard-working individuals. As I will discuss in the following section, it involves "bringing out" new varieties but it also entails the long-term stewardship of new and existing varieties. What emerges from local understandings of varietal innovation in Jarra West is a way of conceptualizing creative action that recognizes the ongoing work of individuals and collectives, along with the multiple, overlapping forms of recognition and claims that such work brings into being.

The Stubborn Dilemmas of Translation

Sometimes finding the right words to ask the right questions can lead to the most challenging and exciting moments during fieldwork. This was the case when my research assistant, Kajally, and I sat down to discuss how we would ask farmers about varietal innovation. During that conversation, I used the word *daadaa* (to make or create) to explain to him what I was thinking. He quickly corrected me, saying that no farmer "makes" new varieties. Only Allah does that. Kajally suggested the word *topatoo* (to organize or steward) instead. After some discussion, we decided to ask farmers about who or what is responsible for varietal creation *and* who or what is responsible for varietal organization.

Although Gambian farmers play an active part in varietal selection and development (Nuijten 2005, 2010), farmers insisted—as Kajally had explained—that their own role in this process is not an act of creation. Only Allah, people said, is responsible for the creation of new

diversity. Instead, farmers described their role in varietal innovation in three different capacities. At the scale of the seed, farmers described their role in the process of varietal development as *tomboŋ*, which literally means "to pick up" or "to select." *Tomboŋ* can refer to the act of culling out off-types or to the selection of off-types to develop into a new variety. At the scale of the variety, however, farmers discussed their role in varietal innovation as a far from passive process. In Mandinka, *fintindi* means "to make to come out." This usage was reserved almost solely for acts involving the selection of strange off-types. After "bringing out" a new variety, farmers would work to "make it well-mannered" (*kúluu*). Finally, and also at the level of the variety, farmers described their role in varietal innovation *and* the maintenance of existing varieties—a processual distinction that I will explore in more detail later—as *topatoo* and sometimes *yiriwandi*. In Mandinka, *yiriwandi* means "to make to develop" and was most often used in reference to widespread varietal maintenance by many farmers.

What is significant here is the way that farmers conceptualize their own and others' labor in bringing a new variety into being—from creation, to bringing out, to organization and development. Many actors are involved in the emergence of new varieties, and these actors work together in different ways. While human labor is part of all of these different processes, at times it is seen as being more individuated, at other times, more collective.

Gifts from Allah, Gifts from Jinn

A great deal of research has documented the ways that farmers in The Gambia and other parts of West Africa engage with seed management and varietal selection (Richards 1985, 1996a, 1996b; Longley and Sellu-Jusu 1999; Longley 2000; Nuijten 2005, 2010; Teeken et al. 2012). Edwin Nuijten has analyzed the degree to which Gambian farmers manage gene flow in rice and millet,

in light of both the reproductive ecology of each crop species and the differences between men's and women's production practices. Nuijten found that Gambian farmers maintain high levels of genetic diversity in their rice fields, select within seed stocks to maintain varietal characteristics, and engage in the selection of new rice varieties from unique off-types, which are far more common in rice than in millet (Nuijten 2005, 2010; Nuijten and van Treuren 2007).

There are a number of agricultural strategies used by rice farmers in The Gambia that enhance gene flow between cultivars, thereby increasing the possibility that unique off-types will emerge. These include the clustering of rice fields with diverse varieties that share flowering times, the acceptance of known off-types in seed populations, and the intentional mixing of certain types of rice varieties (Nuijten 2005). Such mixing has been widely documented in West Africa (Longley and Richards 1993; Longley and Sellu-Jusu 1999; Teeken et al. 2012), and often, though not always, involves the mixing of *Oryza sativa* and *Oryza glaberrima* varieties. In Jenoi, rice fields—particularly in the lowlands—are closely clustered, separated only by small, shallow waterways, which acts also as a conduit for the tide. Many fields in both the lowlands and the uplands are often planted with more than one cultivar (Appendix 8). Additionally, women like to mix seed of white and black-hulled rice *Oryza sativa* varieties, particularly the varieties *taata maanoo* and *latake*. Women also mix seed of two different golden-rust rice varieties, *tiimaa wuleŋo* and *trakitor nukuro* (Appendix 7). Women said that these mixtures make the entire rice field more beautiful. As one women described it—when mixed together—the different rice varieties engage in a beauty contest, each one striving to become more beautiful as the other gains in its beauty. In fact, the mere presence of off-types in a women's field—even those not intentionally mixed in by women or those thrown by jinn—were often said to make the entire field more beautiful.

In his discussion of farmers' explanations for off-types, Nuijten (2005) noted that Gambian farmers most often attributed off-types to God, jinn, nature, heavy rain or the tide. In many parts of West Africa, farmers explain the presence of certain types of off-types—particularly off-types of *Oryza glaberrima*—as "gifts from God" (Teeken et al. 2012; Mouser et al. 2012). Farmers in Jenoi offered a number of similar explanations for off-types in their fields. Farmers explained that known off-types can come from admixture in the original seed stock, a mix-up of seedlings at transplanting (for transplanted rice), or the tide, which, women explained, would sometimes lift a transplant from one field and deposit it in another where it would then take root. On the other hand, farmers explained that strange off-types sometimes emerged from within the parent material—as one woman put it "rice just changes." But most farmers said that strange off-types ultimately came from God via jinn. After all, as my host mother said "rice is a thing of the jinn." It is to how farmers said that these "gifts from jinn" happen to which I now turn.

Although jinn are mentioned in the Quran, the degree to which jinn are important actors in everyday life varies across the Muslim world (Gingrich 1995). In Mandinka cosmology, as throughout much of Muslim West Africa, it is not uncommon for jinn to intercede, assist, or even interfere with the human world. While the farmer whom I quoted at the start of this chapter explained that jinn throw seed because the "affairs of humans are sweet to them," this is not always the case. Instead, jinn occupy something of an ambivalent position in relation to humans. Jinn can be benevolent or malevolent. The former can be bringers of great fortune, knowledge or power, while the latter may cause great human misfortune, even stealing humans away for long periods of time, or making attempts to burn down entire villages. In other cases, jinn might

typify both capacities, testing people's moral character and rewarding or punishing them accordingly.

The potentials of jinn and their ability to test human character are often related through storytelling. There is one story I heard told in Jarra West about a man whose character was tested by a jinn while on a long journey. So the story goes, as the man was leaving his hometown, he encountered an old beggar on the road. The beggar asked the man for a small amount of money to buy some food, but the man responded that he was just a poor man too. Although there was five dalasi (about 15 cents, enough to buy a loaf of bread) in his pocket, he told old beggar that he had no money. The old beggar nodded and went on his way. The man reached his destination, finished his business there, and began his return journey home. While he was on the road, again he encountered—but did not recognize—the same old beggar. The beggar asked him for money. The man had money in his pocket, but once again he responded that he had nothing and went on his way. With that, the beggar responded "and you will always have nothing." As the man realized the magnitude of the situation, he turned to give money to the beggar, only to find that the beggar had disappeared.

Jinn, as bringers of new off-types, demonstrate their capacity for goodness. As one woman put it, "jinn have gifted me rice seed." But there is also something of "gifts of seed" that reflect the potential conditionality of jinn's interactions with humans. Here, women explained that "gifts of seed" are always good, but such gifts are often invited under certain circumstances: Women said that off-types would be sown into farmers' fields when the existing varieties that had been planted by the farmers were exceptionally beautiful. One woman, Sherifu, explained this to Kajally and me.

Sherifu: [The new off-types] are from The Gambia. I have heard the little old women say it is our belief that it comes from the "ones who do the mixing" (*ñaamirilalu*).
Kajally: The "ones who do the seeding"?
Sherifu: Yes, the "ones who do the mixing" put it there.
Susannah: Who are the "ones who do the seeding"?
Sherifu: The "ones who do the mixing" put it there.
Kajally: Jinn [explaining to me].
Susannah: You asked the older ladies and they said it came from jinn?
Sherifu: Yes, the "ones who do the mixing," you understand?
Kajally: Those are the jinn [explaining to me].
Susannah: So are the "ones who do the mixing and the seeding," are they jinn?
Sherifu: Yes, the little old ladies have said that it is so. They say that "the ones who do the mixing" put [off-types] there.
Susannah: Why do they do that?
Sherifu: The rice in your field…they say that if it is very beautiful, like if your mother-in-law says to you, "this rice field is extremely beautiful," the "ones who do the mixing" will put new [off-types] there.
Susannah: Do the off-types make the existing rice field more beautiful or do they make it less beautiful?
Sherifu: It makes beauty like nothing else. [The off-types] come out that way.

Another farmer, Mba Sutukung, explained the origins of off-types. She said that "[Mandinka] say that the [off-types] come from the "ones who do the seeding" (*saririlalu*). That happens a lot. I have found it in my rice."

Susannah: Are the "ones who do the seeding" and jinn the same?
Mba Sutukung: Yooo! [in approval] [Your lesson] is finished! Those off-types are mercy (*hiina*) rice.
Susannah: Why do jinn do this?
Mba Sutukung: Because [when] my rice is very beautiful, they put their own rice there.

Some women said that it is God who sees the beauty of the fields and then sends jinn to do the seeding. In this sense, gifts of seed from God or jinn are "invited" by the existing beauty of a farmer's field.

One farmer explained more specifically where this mixing and seeding happens, and her explanation complicates the sequence of the foregoing narrative. She said, "The "ones who do the seeding," they do seeding in your rice nursery bed. They put it there [not directly in the rice fields].

> Susannah: Who are the ones who throw out the seeds?
> Mba Nyima: They are God's creatures. I alone never do seeding. You know that other ones who do seeding come to the rice nurseries.
> Susannah: Why do they do this?
> Mba Nyima: It is in God's hands. I do not know exactly why. [Perhaps because] we are Muslim. This occurrence is never bad.
> Susannah: Does this happen with groundnut and millet?
> Mba Nyima: It does happen in groundnut and millet fields, but not as much as rice.

The emergence of unique off-types in the field is the result of the work of a number of different human and non-human actors. First and foremost, these off-types, or what Mba Sutukung called "mercy rice" (*hiina maanoo*), were created by God and given to farmers through the work of jinn. Although farmers insist that they do not create varieties, farmers' role in varietal creation is evident in the way that a farmer's skill, character, and work ethic helps explain the presence of off-types in farmer's fields. God gives off-types to those farmers whose fields or nursery plots are beautiful (sometimes recognized so by other people, as in the case of Sherifu's hypothetical mother-in-law), to those who observe the teachings of Islam, or to those who are known to be hard working or blessed, a topic to which I will return. The rice—both the old and the new varieties—also has agency in this story of emergence: existing beauty invites a

gift of extra diversity, which women say makes everything more beautiful. So, even though God alone creates new off-types, to some degree farmers invite those off-types through displays of hard work, their exceptional agricultural skill, or even their goodness as humans. And the rice, in its beauty, contributes to that process.

What emerges from farmers' explanations of strange off-types is a broader narrative about the transactive relationships between God, jinn, humans, and even rice, a relationship premised on certain ways of working, being, giving, and receiving in the world. There is an important interrelational agency at play here: to some degree farmers create the agronomic conditions that invite gifts of seed from God, while under the right conditions jinn help farmers to seed their rice nurseries. Agricultural production, which in this case is also the labor-space where varietal innovation takes place, is made possible by the work and contributions of many different actors. This relationality is significant for how farmers articulate the rewards that return to human innovators and the types of value produced through creative action (Graeber 2001). Farmers are not describing themselves solely as individuated actors in the process of varietal development, but instead, from the first instance, as the deserving recipients of a special type of gift, created by God and brought by jinn, upon which they labor to make new varieties "come out."

The Human Work of Organizing Varieties

Farmers recognize that many different types of work go into varietal innovation. This work is carried out by different actors—God, jinn, humans, and rice cultivars—variously working together and sometimes working singly to "bring out" new varieties. Within this process, human work takes many forms, from selecting and training a variety to developing and organizing it.

Most farmers stated that they had selected off-types. Those who said that they never selected off-types noted that even though they do not, it was very common for other farmers to do so, especially "those farmers who are very dedicated or active (*saayi*)." Farmers said that the selection of off-types thrown by jinn was a process of "bringing out" followed by "making the new variety well-mannered." One woman, Mba Manikarang, who was very active in both selecting new (strange off-types) varieties and bringing varieties from other parts of The Gambia, described this process. She said:

> People pick out these off-types from within the rice. I [also] select them out and I set them aside. Even if I have only two panicles, I can do it and I will put it in another place until I have saved more seed.[32] I will do it until I have [enough for] a new variety. This is a new variety that comes from within the other varieties. [When this happens] you should make (*kúluu*) the new variety behave (*kúluu*) and when the seed is plentiful, you should name it.

Mba Manikarang said that she did this with an off-type she found within the lowland, long season rice variety *trakitor wuleŋo*. She selected and "trained" this new lowland off-type until it was plentiful. Then she named the new variety *Manjago* after her mother (who is Manjago, one of many ethnic groups in The Gambia). Although *Manjago* proved to be a good variety, in other instances farmers said that many of these selections do not prove to be good varieties, in which case farmers will abandon the variety after experimenting with it for one or more seasons.

Farmers placed the selection of strange off-types, the selection of known off-types, and selection to maintain and develop existing seed stocks within the broader undertaking of varietal "organization." Beyond "bringing out" and "making new varieties well-mannered," farmers said that new *and* existing cultivars needed to be "organized." During interviews about varietal

[32] A panicle is the terminal inflorescence of the rice tiller. In other words it is the flowering head that produces the grains.

organization, farmers who mentioned selecting off-types often described the selection of known off-types from within their existing seedstocks. For example, a farmer might select grains from an already existing rice variety that had become admixed in the stock of her other varieties. One farmer explained that she "organized" the variety *trakitor nukuro* when she picked it out of her stock of *trakitor wuleŋo*. She said that this was not a case of organizing a new variety, as other

Figure 4.2: A farmer's selection within his groundnut stock. During an interview, a groundnut farmer explained the selection he was making within the variety *choppo jaŋamaa* (selection 73-33 from Senegal) seed stock for a strain that possess even longer groundnut kernels.

women in Jenoi were already cultivating *trakitor nukuro*, but it was nonetheless part of varietal organization. Like the work necessary to "bring out" and establish and new variety, the culling of rogue off-types from other varieties and the selection of known off-types from existing stock are all part of the process of varietal organization. The muddled distinction between developing new varieties and stewarding existing varieties is significant because of how it deals with the question of labor: many types of work were vital for varietal development and in the life cycle of a variety, there was no hard and sharp distinction between those who "brought out" and those who "organized" and "stewarded."

This is not to say there is no distinction between the initial and subsequent acts of selection. In fact, as I have already mentioned, those individuals who help in the first step of "bringing out" are seen as especially active, dedicated, and hardworking. In effect, farmers simultaneously recognize the role of innovators and the work of other farmers involved in varietal organization. This departs from models of innovation that distinguish between those who "make knowledge and those who merely distribute it," a distinction central to assigning rights and recognition under intellectual property (Hayden 2003b: 364). It also departs from models of innovation that represent farmer innovation as merely collective. Instead, farmers were very insistent that, just as hard-working individuals select out new varieties, the "distribution" itself requires a certain type creative labor that should be and often is recognized. Both types of labor involve the work of many people. As one farmer, Mba Liso, explained, "one person alone cannot develop (*yiriwandi*) a new variety." Echoing this sentiment, another farmer reminded me, "one person alone never stewards (*topatoo*) a variety." Growing many varieties was one way that individual farmers negotiated the pressures of their agricultural environments, and having those varieties grown widely by many farmers also helped ensure that in case of drought, predation, or

crop failure, the variety would not be lost. Thus, in one sense the long-term maintenance of a particular variety was recognized as a collective endeavor, in another sense, individuals were often recognized for their effort to steward a variety through time.

The recognition of individual agency for the labor of varietal organization was most clear in certain cases of varietal renaming. In extreme situations, such as periods of prolonged drought, when a farmer put forth great effort to keep one or more varieties alive, other farmers renamed the cultivar in recognition of this work. During the last years of the Sahelian drought, salinization of the lowland swamps made cultivation impossible for at least six years. Many rice varieties were lost. Although most women abandoned swamp rice production altogether during this time, a few women returned to the swamp each year to test the productivity of the soil. One elderly woman, Mba Aja Jonkong, was able to keep two rice varieties alive during those years. Every year she would transplant a small amount of rice into the swamps to test the salt content of the soil, being particularly careful not to deplete her original seed stock. The year the salt finally receded she was able to harvest a large quantity of the rice varieties *sandasso* and *Nkeyi Susso* (another woman's name) from her experimental plots. She then shared her seed stock with other women in town. In honor of her work to keep the rice varieties going, townspeople renamed the variety *sandasso* as *Jonkong maanoo*.

Rewards of Innovation and the Making of Moral Personhood

The question remains as to how farmers locate value in the creative human labor that goes into varietal innovation. Farmers described the different dimensions of varietal innovation—"bringing out," "training," "organizing"—as acts that produce specific kinds of meaning, value, and reward. Reward from God (*baraajoo*), manifestations of divine grace (*baraka*), gaining

access to a new variety, and even "making one's name famous" were all ways in which farmers discussed the benefits of innovation. These benefits return to innovators in the process of varietal development. At the same time, varietal development is a demonstration of one's work ethic and generosity, and as such it was one way that farmer's displayed and constructed their moral personhood. Thus in some sense, the rewards that return to innovators and the construction of moral personhood are inseparable: to be or behave in the world in a way that brings reward from God also necessitates that a person does good deeds, observable to society. Because seeds circulate and flow through many hands, the human reputation(s) that might become attached to a variety served as a reminder to society of work done to bring a new variety into being, a way of building a type of inalienability within an entity that will almost certainly be shared with others (Weiner 1992). Of course, not all varieties bear the sign of the person or persons who have worked upon them, although some do. What is significant here for thinking about property is the way that acts of exchange make such links more effective by building communities of recognition (Hegel 2008; Robbins 2006). In this sense, acts of inclusion are not a negation of property but rather a way of making property socially effective.

Varietal Innovation, Baraajoo, and the Manifestation of Barakoo

If strange off-types are gifts from God and jinn, farmers' work to make off-types come out transforms those gifts into new gifts that can be shared with other farmers. When farmers discussed the value of varietal innovation, it was this aspect—that of having something to give to others—that farmers said was the most important benefit for innovators. Sharing a new variety widely might help "make one's name famous," but more than anything, farmers noted that gifts of seed to others would be rewarded by God. This echoes Sean Hanretta's observation of Sufi

beliefs about work and gifting in West Africa: "God's generosity could increase a person's generosity, the circle of giving could never be closed…generosity was itself merely a reflection of having received a gift from God and would be rewarded in turn by God" (2009: 230-231).

This reward from God, or *baraajoo*, is a reward only realized in the afterlife. Mba Manikarang explained the source of *baraajoo* and the importance of individual effort in varietal innovation. She said:

> [If you develop a variety], you know that others will not have it. Not everyone is able to bring a variety out, to select one variety out of another. You know that not everyone is so hardworking. The development of new varieties belongs to the hardworking. You select, you select, you select until the variety develops. Then you can give it to everyone. The *baraajoo* is in [the giving].

The reward from God for varietal innovation is premised upon sharing the new variety with other farmers, a reward only realized, in many ways, through acts of inclusion.

Being involved in the development of a variety (including gifting seed to other farmers) was simultaneously testament to a person's work ethic, a reflection of their *baraka*, and generative of *baraka*. While *baraka* is expressed variously in different Muslim societies, historically, scholars in North and West Africa have broadly translated it as "blessing," "grace," or "divine grace" (von Denffer 1976; Bop 2005; Buggenhagen 2011)—most often associated with the gifts of grace that flow between sheiks and their disciples that "[bring] the latter profit or benefit" (Hanretta 2009: 231). Amongst farmers in Jarra West, *baraka* carries a similar meaning of "blessing" or "grace." Ultimately, it comes from God, but it can be made more plentiful through the prayerful wishes (*duwa*) to God given by one person to another entity (human or non-human). In Jenoi, it is not uncommon to hear, give and receive prayerful wishes to and from others first thing in the morning, after greeting someone in the street, before going to bed at night, after giving a gift or doing a good deed, at ceremonies, or before going on a long

journey. Farmers will sometimes give prayerful wishes to their seed stocks—asking God to grant long life and productivity to a particular variety (see chapter 1). In other instances, people discuss some crop varieties—those that are considered excellent—as being or having *baraka*. *Baraka* is the divine grace or blessedness from God that flows through creation: people, plants, places all can possess *baraka*. And to be rich in *baraka* is to "be rich in goodness."[33]

To be or have *baraka* also implies dedication to work and industriousness, because *baraka* is, in the words of one farmer, Mba Allahbatu, "that which arises from good deeds and hard work." While explaining varietal innovation, Mba Manikarang noted that *baraka* was "the first affair" in "bringing out" a new variety, for "the development of new varieties belongs to the hardworking (*saayi*)." Other women noted this too. But in another sense, *baraka* is that which emerges out of acts of generosity, as in the gifting of seed. One rice farmer, Mba Nyima, explained "*baraka* can be found in both the healthiness of the variety and in the heart of the person who gives it [to other farmers]." *Baraka* manifests in the giver, the thing given, and in the act of giving. Along these lines, the work involved in varietal development reflects a farmer's work ethic and moral character within a social milieu that places great praise on those who are perceived to be hard working and generous (Davidson 2009; Buggenhagen 2011). It is through social recognition of this work that people construct both the value of their own actions and their moral personhood (Graeber 2001; Munn 1986). Both gifting and varietal naming were key to this recognition, "making one's name famous" through the names, histories, and stories attached to varieties.

There is also an important verticality to the way that farmers understand both the value of varietal innovation and the benefits that return to those who develop varieties—and that

[33] This was how the Imam of Jenoi described *baraka*.

verticality is established by the flow of both unique germplasm and rewards for giving from God to humans. Paul Dresch (1998) has compared this verticality in Islam to the horizontal relations of gifts and counter-gifts between humans described by Mauss and the other literature on gifts in Southeast Asia. Dresch explained that in Islam, "wealth…comes vertically, as it were, from God…not from horizontal transactions and interdependence among persons" (1998: 114). However, Dresch's (1998) argument that this verticality precludes horizontal, social transactions must be qualified in the case of varietal development and gifts of seed in Jarra West. Both the verticality and the horizontality of seed gifts are central not only to successful varietal development, but also to the production of value and reward for those involved. *Baraka*—although flowing ultimately from God—is premised on the recognition of a person's works or good deeds by other members of society.

Naming, Recognition, and the Power of Conflicting Seed Histories

Much has been written on varietal naming in The Gambia (Nuijten 2005; Nuijten and Almekinders 2008) and elsewhere (Appa Rao et al. 2006; Bizuayehu 2008; Hmimsa et al. 2012). Varietal names can reflect plant morphology, place of origin, or the person who selected the variety or brought it to a new place. In Jenoi, rice varieties were named after particular morphological characteristics (*manifiŋ meseŋo*, *sipa baa*), ripening time (*dindintariŋo*) place of origin (*Kawuro*), stories of their introduction (*puudaro*, see chapter 3), or people associated with the introduction, selection or stewardship of a variety (as in the case of *Jonkong maanoo*). In this latter case, naming is way of inscribing social practice into material entities (Mützel 2009).

As a form of social recognition, naming is a way of making durable the aspects of varietal innovation—such as the work, effort, and generosity of those who innovate—that are

less tangible. Within a social milieu where people recognize that varietal development involves many different actors, varietal naming was thus a way to recognize the individual agency of the farmer who worked to bring out and train a new variety. "If you develop a new variety," one woman explained, "maybe it will be named after you when you share it with others." There are a number of varieties in Jenoi that are named after people (Appendix 9). Some of these are named after people who were involved in "bringing out" the variety, while others are named after the loved ones of those who selected and trained the strange off-type. During an interview, one man was sure to note that he had selected and developed a variety of rice that women subsequently named after him—*Faburama maanoo*, although the variety has since been lost. Even the groundnut variety *Burukusoo*, grown in Jenoi and all over The Gambia, was originally named after the colonial administrator who helped develop it (see chapter 6).

If a farmer introduces a variety to a new place, it is very common for the variety to be renamed after the person who introduced it (Nuijten 2005; Nuijten and Almekinders 2008). In fact, farmers often recalled the dedication of those who introduced varieties to a new locale in the same way that they praised those who helped develop new varieties. In either case, the effort might bring great reward from God and "make your name famous." One local agricultural extension agent bemoaned the practice of renaming varieties introduced to new places because this practice of "making one's own name famous" made his horticultural work more difficult by adding to the proliferation of varietal synonyms. Although double or re-naming can confuse the work of agricultural extension agents or assessments of crop diversity, it can be an important component of the social signification of human labor. In Jenoi, there were a number of rice varieties named in honor of the person who brought them to the area. This was the case of the

varieties *Mariyama Manjang maanoo*, *Kaddy Saidybaa*, *Allahbatu la maanoo*, and even *Meeji wuleŋo* (named after another colonial officer).

When a variety does not carry a commemorative name, it might still be associated with a story (or stories) that commemorates the human work involved in its development or introduction. Farmers tell stories about who brought a variety to Jenoi, who selected such-and-such variety as an off-type from another seedstock, and who maintained varieties during periods of socioeconomic and environmental stress. Like Mba Aja Jonkong, a number of other women are credited with maintaining certain varieties during the Sahelian drought. Different women kept the varieties *Kumbandiŋo*, *trakitor wuleŋo*, and *mbibiyo* alive during the drought—and people talk about it.

Sometimes one variety might make its way to Jenoi in many different ways: through multiple direct introductions from a nearby village or from the independent selection of off-types from existing seed stocks. In these cases, this variety might carry multiple histories of how it came to be in Jenoi. These histories can conflict in ways that make at least one of them impossible. For example, there is one rice variety whose introduction is credited to or claimed by three different women. (The time since introduction is roughly the same; five to six years in each story.) These conflicting histories trace the variety's origins to two different parts of The Gambia. The likelihood that at least one of these histories might not be true is beside the point: the point is that farmers can and often do assert claims or assign agency to others in ways that result in conflicting seed histories. Such conflicting histories underscore the ways that recognizing and assigning agency is sometimes contested. But it also points to the ways that varieties, because they travel through the hands of different farmers, are always already shaped by the effort of many different people.

When Rights are "Rights to Give"

When farmers in The Gambia help bring out new varieties, they are taking part in a process that is generative of new crop diversity, social relationships, and their own moral personhood. This is an undertaking whereby value is produced within the transactive relationships between different actors and through the creative labor that goes into bringing out new varieties. Here, gifts from God and jinn can be transformed—through the efforts of the hardworking—into gifts of seed between farmers. The value of creative labor is realized through the act of further giving: It is only through giving that varieties truly develop, that God rewards the innovator, and that society can recognize the efforts of the hardworking. Farmers explained that varietal organization is never a singular undertaking, but through naming and telling stories about crop varieties, people also recognized the individual agency of farmers who help bring out a new variety and those who help organize existing ones.

When farmers in The Gambia take part in varietal innovation, they are doing so with a particular understanding of labor and what that labor entails for how people make claims to crop germplasm. It is thus significant that before varieties ever fully emerge as varieties, they have already been gifted: from God to jinn to humans. The gift obliges not as much a return gift (Mauss 1990) as a forward gift. This was explained to me one day by Baa Mamanding, a rice and groundnut farmer in Jenoi. He said, "if a person gives you [a variety], you know that they have given you a right (*ñantoo*).[34] If you work that variety and you have something there, your own right is that you should give the variety to other people." In some sense recollective of Hegel's discussion theory or rights (Salter 2003), this farmer's explanation of *ñantoo* straddles the

[34] *Ñantoo* also refers to the materials that one must provide for a ceremony. Here, it is used in a sense that is related to the verb *ñanta*, meaning "to must do" or "ought to." It is thus very closely related to the idea of obligation, a topic I will discuss more in the next chapter.

boundaries between rights and obligations, between what one is due and the responsibilities that one has to others by virtue of being a member of society. Although Baa Mamanding was explaining gifts between farmers, a similar right/obligation might be noted in the original gift from God and jinn. Hanretta observed a similar interpretation of the gift in his work on Sufism and gifting in West Africa: "It was because all gifts came ultimately from God that one was obligated to make gifts to others, striving to embody in some imperfect sense this aspect of God" (2009: 230).

In this context, a "right to give" is a right that is accompanied by reward, recognition, and the opportunity to create certain types of social relationships. In many ways, this is not unlike the exclusive rights established under intellectual property, which are reward for innovative labor, a socially-recognizable claim to the products of that labor, and which simultaneously reconfigure the social relations of exchange. Yet, whereas intellectual property is working from a liberal conceptualization of personhood and labor that ultimately frames property in terms of exclusive rights, the model of rights at play in Jarra West accounts for the importance of inclusion in fulfilling property relations. Inclusion, of course, is itself a constructed and messy arena (Hayden 2003b), and just because farmers discuss rights as "rights to give" does not mean that it always plays out that way. Rather, acts of inclusion are simultaneously reflective of existing relations and generative of new social relationships. And sometimes, people, for various reasons, refuse to give: as one woman explained during an interview, "if people do not like you, they will not give you seed."

It is the value and recognition that farmers give to seed transactions, coupled with the possible conditionality of acts of inclusion that, I think, point to the ways that "rights to give" can be understood as one type of claim among many possible ones, rather than as a negative

space where claims do not exist. Nonetheless, it is perhaps the propensity towards inclusion that makes farmer seed exchange—in The Gambia as in other parts of the world—appear simply "free" or "freely given" (Brush 1993, 1998). Thus, to assume that such exchanges are testament to the presence of a global (or local) commons or an unrestricted public domain very well might misinterpret the complex ways that farmers in certain places understand creative labor, locate value in the production of new varieties, and attain individual reward through these types of claims. It also assumes that all members of a commons or a "public" share a relatively consistent understanding of what exchange, recognition, rights, and property mean. In Jarra West, a "right to give" or even an "obligation to give" returns something to those who innovate, exchange, or give. At least part of this return is premised on the recipient's social recognition, their prayerful wishes to God, and, in spectacular cases of effort, public commemoration, which is achieved through naming.

In this sense, recourse to "freeness" not only has consequences for how farmers' innovative labor and claims are represented to and within the law, but it has the tendency to generify local practice. Does a free exchange (or a gift or even a sale) of seed between farmers in the United States and farmers in Jarra West carry the same meaning or entail the same rights or obligations? Does the creative labor involved in innovation mean the same thing from one place to another? Across various scales? And what happens when relationships break down—when rights and obligations to give are justifiably severed by the actions of certain people or groups of people—as sometimes happens?

I think part of answering these questions—particularly the question of how to understand the "freeness" of farmer seed exchanges—involves rethinking what varietal innovation and seed transactions mean in different places and to different people. Despite a vast literature on farmer

seed systems and an even vaster literature on exchange, studies of the gift have rarely met with studies of the seed (there is a growing literature on this topic, however, see Aistara 2011). As Sutton (2001) has pointed out in his discussion of gifts of food and hospitality in Greece, scholars have often distinguished between gifts of durable wealth items and gifts of perishable foodstuffs, attributing to the former alone the power to increase the fame and notoriety of the giver. Following from Munn (1986), Sutton makes the case that the gifting of foodstuffs—because of the stories told about acts of sharing—are as important for the construction of identity and reputation as are the gifting of durable goods. The same could be said of gifts of seed, which, in some instances might take on an inalienable quality so often reserved for rare valuables (Weiner 1992).

In the chapter that follows, I trace seed exchange practices in Jarra West, and the ways that seed transactions—and the stories people tell about them—are central to the production of social identity, to the construction of new and existing relationships, and to the negotiation of access to crop germplasm. Close attention to seed transactions forces a reconsideration of how "rights to give" establish claims to germplasm that break open standard conventions of commodity-property relations.

CHAPTER 5

RIGHTS AND THE MEANINGS OF SEED TRANSACTIONS

N kañanta buka beŋo taa
The sufficient one never comes together with others –Mandinka proverb

One morning in Jenoi, as I was leaving breakfast at the local restaurant owned and operated by one of my host-mothers, two men who worked at the nearby weigh station waved me over to where they were sitting. The morning rush of vehicles travelling north from Casamance to Dakar had subsided and, as such, their work weighing the cargo of passing trucks had ground to a peaceful halt. They had set up two chairs outside of the weigh station office, which were perched just outside the boundary of the rooftop shade so that the morning sun could burn off the chill of the morning air. Below the feet of their chairs was a scattering of groundnut shells, the remnants of their morning snack. I was in a hurry to meet my research assistant and to "begin my work," but I was also quickly learning that such impatience to get things done rarely led to anything productive. After the exchange of a long series of requisite greetings, the first man said to me, "Sit. Chew some groundnuts."

I thanked him, but explained that I was only just from breakfast and that I was already quite full. I had had enough to eat (*N kañanta*). He smiled and said, "But you don't understand, *n kañanta' buka beŋo taa*, (the sufficient one never comes together with others)."

As I realized his meaning, a wave of shame crept over me. Saying nothing, I held out my hand, into which the second man dumped a large pile of roasted groundnuts. Fighting the impulse to feel like I was in a rush to get anywhere, I sat down to visit while we cracked

groundnuts, the pods revealing two, rarely three, small pink nuts. I was secretly hoping that my research assistant would not show up for our scheduled work on time, but I tried to ignore that thought. My impatience must have been ill veiled, however, because the first man asked me where I was going that I was in such a hurry. I explained to them both that I was supposed to speak with some of the elders in Jenoi about the history of the area. No doubt seeing an opportunity to continue the lesson that he had begun with his proverb, the first man asked me, "Have you heard the story about how Soma and Sankwia [two nearby villages] got their names?" I shook my head. Without hesitation, he continued with his story.

> Many years ago, before matches or lighters were available, fire was difficult to make. One day, all of the fire in the village of Sankwia was lost. People in Sankwia went to the people of Soma to ask for help with fire. They said, "all the fire in our village has been lost. Help us with fire." So, the people of Soma gifted the people of Sankwia fire. Some time later, all of the fire in Soma was also lost. Remembering their gift to their neighbors, people of Soma went to the people of Sankwia and said "please, we have lost fire, help us with fire." The people of Sankwia said, "you can have fire from us, but you must pay for it."[35]

The gifts of fire narrated in this story were by then familiar to me. During my time in Jenoi, women often shared coals to ease some of the burden of starting the cooking fire. Many days, after my host mother had built up a bed of strong coals over which she would boil rice, our neighbor's five-year-old son would pop his head through the compound gate. He would say, "*Sarata ko, a só dìmbaa la.*" (Sarata—his mother—said to gift her some fire.) My host mother would scoop some hot coals into the dull head of a broken shovel and hand it to the boy.

In Mandinka *só* means "to gift" or "to offer." The presence of *–ma* in the village name of *Soma* makes one possible translation of the town name as "the one who gifts." *Saŋ*, on the other hand, means "to buy" or, sometimes, "to sell," while the verbal adjective *kuyaa* (pronounced like

[35] This version is paraphrased from my field notes. Later versions of this story cited in text were relayed during audiotaped interviews, and are thus exact, translated, transcriptions.

"kwia") is often used to describe one who is unfriendly or unpleasant. Thus one possible translation of the name *Sankwia* is "unfriendly or unpleasant buying." Although people of Soma were willing to gift fire to their neighbors, when necessity required, the people of Sankwia would not return the gift. Through the naming of places and the stories repeated about them, the early settlers of Soma are remembered as the ones who gifted, while those of Sankwia are remembered as the ones who not only insisted on selling hot coals—but the ones who failed to honor past gifts. The story of how Soma and Sankwia got their names is a story about the ethics of exchange, the construction of moral personhood, and the power that narration has to shape value regimes and social relations. This is a story of Maussian proportions: here, the willingness to give, the willingness to receive, and the willingness to give a return gift (Mauss 1990) have certain types of consequences. Even in the gifting of something as perishable as fire, acts of generosity or stinginess are memorialized through naming and the narratives that circulate around them (Munn 1986; Sutton 2001).

Although stories often narrate social relations, they also bring relations into being (Law 2011). In this case, the story through which people fashion the history of each place also serves as an allegory through which people fashion themselves and their shared social identities (Feld and Basso1996; Basso 1996). For example, one day, on hearing the story of Soma and Sankwia again from a village elder, he offered an explanation as to why Sankwia refused to return the gift of fire. He said:

> Those Soninke [of Sankwia] were not Muslim.[36] They said "We will not gift you fire. The fire that we got from you all, why did you not care (*topatoo*) for it yourselves? The fire that we got from you all, we will not give it back to you unless you buy it."

[36] According to oral histories of the region, Soma, not Sankwia, was one of the earliest Muslim settlements in Jarra West (Susso *n.d.*).

The story of how Soma and Sankwia got their names is as much a story about the ethics of gifts and return gifts as it is a story about how certain types of economic transactions—and the stories told about them—are constitutive of both social identities and social relations (Graeber 2001; Sutton 2001).

In Jarra West, transactions of seeds and crop varieties were one way among several that farmers maintained and negotiated access to crop germplasm in any given year. Seed exchange also helped create the very social relationships through which future transactions might continue, as, in the words of one woman who received a gift of rice transplants from only a distant acquaintance: "Now humanity has entered [the space] between us." Women, in particular, relied on such pathways to gain access to prized varieties and to ensure adequate planting material in the future, as gifts of seed in one season might come back in the form of return gifts in another season, or even sometimes, in another generation. Seed exchange thus opened up pathways of access to new varieties at the same time that it represented an investment in the social relations that ensured future access.

Yet seed transfers—whether gifts, exchanges, loans, or sales—were also acts that produced various kinds of value and meaning. Much like the ways farmers discussed the benefits of varietal organization and stewardship as first and foremost having something new to give, seed transfers in general—even those that did not involve new varieties—could generate *baraka* (divine grace) and *baraajoo* (reward from God) at the same time that they were also testament to an individual being hardworking, generous, and good. Like the receipt of bowls or the giving of cloth at important life ceremonies, seed transactions—although less conspicuous—were one way among many that women and men constructed their "moral persona" to themselves and society (Buggenhagen 2011). The power of seed transactions to bring reward, generate *baraka*, or

construct one's moral persona depended upon how transactions were carried out, the meanings and relationships created through such actions, and the ongoing narratives of exchange that helped the giver, receiver, and society, remember acts of generosity. In this sense, seed exchange was a means of acquiring germplasm and fostering future pathways of access, but it was also central to the construction of value and social identity.

In this chapter I explore the meanings and relationalities of seed transactions in order to tease out how "rights to give" shape claims to seeds. As I already discussed in the last chapter, farmers described seed transactions—or rather the dissemination of new and existing cultivars—as part of the process of varietal development and varietal organization. Because ultimately all varieties were either gifts from God and jinn (as in the case of novel off-types) or were acquired from other farmers, in some sense acts of giving and receiving between people might be traced back to the rights and responsibilities sparked by original acts of generosity, whether from God, jinn, or other farmers. Such seed transactions—like other forms of "appropriate" exchange—produced different types of social, spiritual, and economic value for those who gave and for those who received. Farmers recognized that part of this value resides in the way that seed transactions open pathways for future access to germplasm if and when farmers need it. Yet another part of this value emerges from the ways that certain types of seed transactions, invite spiritual reward, and, in the words of one farmer, "join people in kinship" (*ka baadiyaa cokiyaa teŋ*). Framed as *rights to give*, claims to seed advance rights to act in ways that fulfill one's relationship with God, build and nurture social relations, and construct oneself as a moral actor within the social realm.

Theorizing Rights as Rights to Give

What does it mean to claim that one's right to seed is a *right to give*? The idea of a "right to give" has taken many different forms in discussions of farmer seed exchange. Prior to 1991, for example, it was mandatory that all members to the International Convention for the Protection of New Varieties of Plants (UPOV) provide a "farmers' exemption" to the private rights conferred via plant variety protection. Although UPOV was redrafted in 1991 to make this exemption optional for all new signatories, the exemption was intended to ensure farmers' rights to save and exchange seed of protected varieties amidst the expansion of private property regimes. Likewise, many of the arguments leveled against intellectual property point to the "open" or "free" dimensions of farmer seed exchange in order to underscore the rights of farmers to save and exchange seed amidst the expansion of increasingly proprietary laws (Brush 1999; Salazar et al. 2007). Depicting the management of crop genetic resources as an open and collective practice (Brush 2007b) has thus been a way to emphasize how intellectual property and bioprospecting contracts alike are "incongruous with the nature of indigenous knowledge and management of biological resources" (Brush 1999: 537).

In Jarra West, farmers' discussions of "rights to give" reflect strong pressure towards inclusivity in seed exchange practices that, in some sense, seemingly resonate with descriptions of farmer seed transactions as "open" or "free." In any given season, a great deal of seed and germplasm is exchanging hands, most often without charge. Yet seed transactions do more than move seed around. They create something for the giver: reward from God, divine grace, and the ability to fulfill social responsibilities. And, for both the giver and the receiver, they might foster "the sweetness of relatedness" (*baadiyaa diyaa*). Along these lines, it is by having "something in one's hand" to give and giving it that people in Jarra West construct themselves as human beings

in a capacity that is recognized by other members of society (Benhabib 2003; Robbins 2006). It is in this sense that Hegel's (2008) observation that property consists of possession, use, *and* alienation is so significant for understanding just what farmers in Jarra West are getting at when they describe rights to seed as "rights to give."

For Hegel, gifting and exchange (what he referred to as alienation) was not a negation of property. Rather, it was a way for individuals to enter into relations of mutual recognition through the exchange of objects (Robbins 2006). Unlike Hobbes, who posited that humans sought self-aggrandizement through the possession of material things and, to some extent, the strategic use of self-interested gifts (Hobbes 1985), Hegel argued that it was through the possession, use and alienation of material objects that humans sought to construct themselves in meaningful ways within communities of recognition (Hegel 2008; Benhabib 2003; Robbins 2006). Ultimately, Hegel and Hobbes were working from very different theories of human relationality and the motives humans brought to the construction of social relationships. But what is most significant is that Hegel's theory of property is that exchange can be central to the fulfillment of property relations, rather than merely the negation of claims. In effect, Hegel's approach to property opens up space for thinking about how seed claims—among many types of things—might require sharing (Tsing 2003). In this approach to thinking about property, "rights to give" emerge as one very important way that farmers go about making and fulfilling claims, constructing themselves, and building social relations within communities of mutual recognition (Benhabib 2003).

Two Legacies of "Free" Gifts

Any discussion of rights to give must address the longstanding tension between the "freeness" and "openness" attributed to seed exchange in much of the literature on farmer seed systems and the illusory "freeness" attributed to gifts in much of Western scholarship. The first of these two legacies is the longstanding practice of writing against emerging intellectual property law by referring to farmer seed exchange (or management of biological resources in general) as "free" or "open," as constituting a vital commons without which agricultural production would have been and will continue to be impossible (Nijar and Ling 1994; Calle 1996; Brush 2007b; Salazar et al. 2007; Halewood 2013). In these narratives, "free exchange and sharing of landraces among neighbors and relatives, but also within wider circles is embedded in *farmers' culture*" (Salazar et al. 2007: 1520, emphasis mine). Sometimes the freeness of farmer seed exchange is advanced as evidence of a local commons in crop germplasm, and sometimes it is "scaled up," testament to the historic treatment of crop germplasm as the "common heritage" of humankind (Brush 1998, 1999; Roa-Rodríguez and van Dooren 2008).

The second legacy relates to the ambivalence of "freeness" in studies of the gift and in Western philosophy in general. Over three hundred years ago, Thomas Hobbes wrote of the self-interest of the gift: "For no man giveth, but with intention of Good to himself; because Gift is Voluntary; and of all Voluntary Acts, the Object is to every man his own Good; of which if men see they shall be frustrated, there will be no beginning of benevolence, or trust; nor consequently of mutuall help" (1985: 209). It was because of the very self-interest of the gift, for Hobbes, that gratitude was the "Fourth Law of Nature." Without gratitude, the recognition of the self-interest of the gift might cause humanity to "remain still in the condition of War" (1985: 209). When Mauss published his *Essai sur le Don* (1990), he was in many ways writing against the self-

interested individualism that had been attributed to the gift. For Mauss, the "total services" of gifting brought with it obligations to give, obligations to receive, and obligations to reciprocate. Although such gifts were obligatory and interested, they nonetheless constituted the basis of social relations, exchange, and contract and might thereby offer a real alternative to the economism of market rationalities.

Since the publication of Mauss' work, the tension between self-interest, generosity, mutual obligation, and indebtedness has continued to haunt studies of "the gift" in Western philosophy (Schrift 1997; Cixious 1997; Bourdieu 1997b; Bernasconi 1997). As David Graeber (2001) has shown, in many efforts to deconstruct the gift, scholars have ended up reproducing models of human action that reinforce neoclassical ideas about the self-interested, benefit-maximizing motives that underlie all economic behavior. For Pierre Bourdieu, for example, an ethic of generosity in the gift is often only a "second-degree strategy" accompanied by motives of what he has called "primary profit" (1997a: 202). Rather, "strategies aimed at producing practices 'according to the rules' are one among other types of officialization strategy, aimed at transmuting 'egoistic,' private, particular interests…into 'disinterested,' collective, publically avowable, legitimate interests" (Bourdieu 1997a: 202). According to Bourdieu's theory of economic action, there is little room for both interest and generosity to co-exist: one motive (in this case the one that corresponds with formal economic theory) must trump, and therefore take greater objective precedence, over the other.

Similarly, Jacques Derrida (1992) argued that true gifts are in actuality impossible: the minute that a gift is recognized for being a gift, it is not longer a true gift. This nullification occurs because recognition, either by the giver or the receiver, creates feelings of obligation that demand reciprocity, and reciprocity—along with return, exchange, counter-gift, or debt of any

kind—means that the gift was not given freely. For Derrida, caution about the impossibility of the gift "activates our critical and ethical vigilance" to be aware of how "the 'generous' or 'grateful' consciousness is only the phenomenon of a calculation and the ruse of an economy" (1992: 15-16). In exploring the position of self-interest in Derrida's analysis of aporetic gifts, Robert Bernasconi (1997) has suggested that it is because Derrida does not give serious attention to the way that the interpretation of intention is culturally variable that he relies upon, and then universalizes, one very specific cultural logic of the gift. Bernasconi argued that this tendency to universalize one interpretation of intention, "all too readily leave[s] intact the West's tendency to declare its universality by devaluing, excluding, appropriating, or assimilating its other" (1997: 270).

Accordingly, David Graeber, drawing on the work of the group *Mouvement Anti-Utilitariste dans les Sciences Sociales* (MAUSS), traced the roots of the tension between self-interest, calculation, generosity, and reward to theories of the gift within early Christian doctrine, in which any return to the giver—even happiness at having done a good deed—made gifts no longer gifts (2001: 160-161). Graeber suggested that the stark divisions between self-interest and generosity, freedom and obligation, and persons and things made in many studies of the gift are largely ways of thinking about human intention that are culturally and historically specific, and that, to some degree, end up reproducing the logic of the market. Instead, what is important, and as Mauss was well aware, is that for many people around the world, the self-interest of the gift does not make its generosity impossible. Likewise, while the obligations that gifts effect might diminish individual autonomy, the other option—that of having no connections at all—might be a far worse option.

In thinking through seed claims as "rights to give," my concern is that the first legacy of free gifts has the tendency to reduce all farmer practice to an open, generic, almost undifferentiated commons, while the second legacy reduces all humans to self-interested, utility maximizing actors. Perhaps the irony is that each approach reproduces a model of human action, value, and property that is to some degree a product of the legacy of capitalism (Goldman 1997). In both instances, gifts exist as perfect foils to market rationalities. In the first, the free sharing of seed amongst farmers stands in stark contrast to the exclusivity of private property. And in the second, any self-interest whatsoever nullifies the acts of generosity, making the gift "an impossible mirror of market behavior" (Graeber 2001: 161). In the process, farmers' conceptions of rights are relegated to a vision of property that is itself an outcome of a very specific way of seeing the world. Neither the model of "free" and "open" exchange nor its complement of self-interested gifts adequately accounts for the ways that farmers in Jarra West negotiate access to crop germplasm or articulate rights to seeds as *rights to give*.

Whose Rights Count?

The word for "right" that farmers in Jarra West use to discuss "rights to give" is *ñantoo*. Generally, *ñantoo* (noun, pl. *ñantoolu*) refers to that which a person who is having a celebration must purchase for the occasion, such as the ingredients that will be used to cook the meal to feed all attendees. Although this usage of *ñantoo* refers to a socially-recognized responsibility that all hosts should meet, the ways that farmers use *ñantoo* in relation to *rights to give* also borrows from the usage applied to "human rights" (*hadamadiŋyaa la ñantoolu*) and is rooted in the verbal formation *ñanta* or "to ought to/should do" something. When describing these rights, farmers most often framed this concept in terms what one does for kin, for neighbors, or for another

human by virtue of "sitting together" or "oneness." Similarly, as one farmer explained, "there is a right to give because helping leads to helping, refusing leads to refusing." To some extent, such statements recall Mauss' (1990) discussion of the imperative to give, to receive, and to give again. In another sense, the emphasis on relationality, on "oneness," interrupts the logic of reciprocity. Here, obligations to give are wrapped up with the connectedness that exists between certain people by virtue of being part of society or sharing a particular relationship. Framed as rights to give, rights to seed emerge from and ultimately reproduce what Amira Mittermaier has described as peoples' recognition of "the profound dependency and interdependency of humans" (2014a: 64).

Theorizing rights to give thus requires attention to how people attribute meaning to various types of seed transactions, how they construct themselves through such acts, and how they understand the relationalities that come into being through gifts, exchanges, sales, and loans of seed. It also demands attention to how people understand intention in acts of exchange and how they understand the rights and responsibilities that arise from such transactions. This is because acts of providing and acts of receiving seed often meander some of the very tensions that run through commentaries on the gift and neoclassical theories of human rationality: calculation, self-interest, conditionality, and that which is incalculable, disinterested, and unconditional. During interviews and in daily conversations, farmers often discussed these transactions in ways that foster "the sweetness of relatedness" at the same time that they create debts and obligations. Thinking through rights to give thus requires attention to where some of these classic binaries get muddled. As Hélène Cixous argued, "[r]eally there is no 'free' gift. You never give something for nothing. But all the difference lies in the why and the how of the gift, in the values that the

gesture of giving affirms, causes to circulate; in the type of profit the giver draws from the gift and the use to which he or she puts it" (1997: 159).

In the sections that follow, I first discuss how farmers in Jarra West carried out seed transactions and how farmers narrated their own transactions. In general, there was a tendency for farmers to recall and narrate more of what they gave than what they received. This disparity not only underscores the cultural importance placed on giving, but it also points to the importance of narrating generosity in the production of value and personhood (Sutton 2001). Second I explore how farmers located meaning and value in these various types of transactions. Men and women articulated the meanings of seed transactions in different ways, a difference that is traceable to the gendered relations of agricultural production and the degree to which certain types of seed economies have become enmeshed in market relations. What made seed transactions ethical was the type of interest that different actors brought to different exchanges. For farmers, interest was inherent in all of these transactions, but it did not *necessarily* devalue the generosity or "pure heartedness" that also existed alongside it. Finally, I trace how farmers articulated rights to seed in terms of the creation of moral personhood, the construction of affective relationships, and the fulfillment of obligations and entitlements that come into being through seed transactions.

Tracing Farmers' Seed Transactions

In order to trace the dynamics of farmer seed exchange, my research assistant and I carried out semi-structured seed network interviews through three network rounds (selected through one random village sample and two subsequent network samples, see Appendix 1). We spoke with a total of 75 rice, millet, and groundnut farmers (59 women, 16 men) across the villages of Jenoi,

Sankwia, Soma, Karantaba, and Pakalinding (see Figure 1.2). Because of limitations on time, for each network sample round we only selected a percentage of each farmer's exchange partners (Appendix 1), so there is a difference between the "complete" network and the "in-sample" network. The complete network includes all interviewed farmers and those they listed as having given seed to or received seed from in the 2010-2011 planting season. The in-sample network includes only exchanges among the interviewed farmers. For this reason, the in-sample network provides insight into how individual farmer's accounts of seed transactions relate to one another. Being able to trace the differences between farmers' accounts illustrates how farmers narrate seed transactions and how these narrations are enmeshed with how farmers construct their identity and the value of their actions to themselves and society (Munn 1986; Sutton 2001).

Throughout, I define seed "transactions" by each discrete exchange event and by the direction of exchange. For example, a *gift* of rice seed presumably represents an outgoing gift for one farmer and an incoming gift of seed for another, whereas an *exchange* of rice transplants between the same farmers represents a mutual transaction event for each farmer (see Ellen and Platten 2011 for a similar approach). In all, the seed *gift* plus the transplant *exchange* would represent four different transactions, two for each farmer. In my discussion that follows, I trace transactions this way because farmers did not always agree on how transactions were carried out. There are a number of contested and unrecognized exchanges within the seed network that cannot be understood without looking at both subjective sides of the seed transaction.

During the 2010-2011 planting season, I recorded a total of 422 seed transfers among 75 farmers across five villages. Farmers transacted rice, millet, and groundnut seed in very different ways, and this was due to a number of reasons (Tables 5.1, 5.2). Women said that they never sold rice, and in 2010-2011 there were no recorded sales or loans of rice seed within the entire

seed network. Approximately 84 percent of all rice seed transactions—including transactions of seedling transplants—were gifts, the rest were described as equal exchanges. Men, however, did regularly buy and sell groundnut seed. For groundnut seed, sales were the most common type of transaction, followed by gifts and then loans. All four recorded transactions of millet seed within the entire network of 75 farmers were gifts.

Table 5.1: Percentages of gifts, exchanges, loans, and sales recorded for all transactions across entire seed network.

	Rice Farmers, N=66 (%)	**Groundnut Farmers, N=13 (%)**	**Millet Farmers, N=2 (%)**
Gifts	336 (84)	3 (16)	4 (100)
Exchanges	63 (16)	0	0
Loans	0	2 (10)	0
Sales	0	14 (74)	0
Total	399	19	4

Table 5.2: Breakdown of men's and women's seed transactions by type of exchange. Men's transactions include those for rice, millet, and groundnuts.

	Women, N=59 (%)	**Men, N=16 (%)**
Gifts	325 (85)	18 (45)
Exchanges	57 (15)	6 (15)
Loans	0	2 (5)
Sales	0	14 (35)
Total	382	40

To some extent, the reasons farmers sought germplasm (chapter 3) influenced the ways that they transacted seed. Gifts of millet seed among men were small, measured out in large tomato paste cans. For groundnuts, on the other hand, men were generally seeking large bags,

locally called “half-donkeys,” for planting. If sold on the bulk market, a half-donkey of good, heavy groundnuts in 2009 might fetch 500 dalasi (or about 17 US dollars). As such, the actual market value of most groundnut transactions was quite high, and men often chose to sell seed. Because farmers sought rice and groundnut seed for somewhat different reasons—as varietal acquisition or replacement of their entire seed stock, respectively—the relative quantities of seed and the way farmers transacted seed were quite different. For example, most women gifted or exchanged, at maximum, one or two bundles (*maanibuloo*), or approximately 2-4 kilos, of rice seed. When gifting or exchanging rice transplants, women would share anywhere from a couple of handfuls of seedlings to whatever leaves stood in their rice nurseries after transplanting their own fields. There were a few exceptions, however. Two men who were growing rice exchanged approximately 30 kilos of seed; in another instance, two men exchanged roughly 15 kilos of seed. In each case, one party to the transaction was planting his entire field with a single rice variety. Most often, however, rice farmers, particularly women, were adding only a single variety to their existing repertoire and thus shared small amounts of seed or transplants.

Narrating Transactions, Narrating Personhood

Research on seed systems in West Africa has pointed to the ways that being self-sufficient in seed and being net providers of seed are tied to ideals of social responsibility and ethics of hard work (Nuijten 2005). These ideals similarly shaped how farmers reported their seed exchange practices during network interviews. After asking farmers from where or whom they received planting material during the previous planting season, many stated that they never go to others for seed but, instead, others regularly come to them to get seed or rice transplants. As one woman said, “The people who give me seed, it is not plenty. I save seed.” During another interview,

another woman, after talking about a number of different equal exchanges of seed with other farmers, said, “I most often eat the seed that people give me in exchange,” implying that was not she who sought extra planting material. Farmers thus spoke with a strong sense of pride about being socially recognized for maintaining good seed or being one who gives widely and who seldom relies on incoming seed gifts.

In general, during seed network interviews, farmers recalled providing far more seed to others than they received. Within the entire network, 58 percent of all gifts, loans, and sales were outgoing, 27 percent of gifts, loans, and sales were incoming, and 15 percent of transactions were mutual exchanges (Figure 5.1). In theory, all reported outgoing transactions for the in-sample network would be matched by an incoming transaction for the in-sample network. This clearly was not the case. Without comparing the transactions within the entire seed network with those of the in-sample network this pattern might appear to be the result of a sampling bias that disproportionately captured net providers of seed. However, the percentages of outgoing, incoming, and mutual transactions reported by farmers in the in-sample network roughly mirrored the breakdown of transactions for the entire network: 53 percent of all reported in-sample gifts, loans, and sales were outgoing, whereas only 29 percent were incoming, and 18 percent were mutual exchanges (Figure 5.2). The similarity in the directionality of reported transactions between the entire network and the in-sample network represents a tendency for farmers to narrate more of what they gave than what they received.

For the in-sample network, differences in how farmers reported the directionality of their seed transactions meant that transactions between farmers fell into one of three resolution categories: recognized/agreed upon, recognized/contested, or unrecognized. **Recognized/agreed** transactions were those where both parties recognized that a transaction occurred and mutually

agreed on the details (directionality/type of exchange) of the transfer. **Recognized/contested** transactions were those where both parties acknowledged that a transaction occurred, but disagreed as to how it happened (whether it was a gift, exchange, loan, or sale, for example) or, as was more often the case, its directionality (outgoing, incoming, or mutual exchange). **Unrecognized** transactions were those that were only acknowledged by one person, either the giver or recipient of seed.

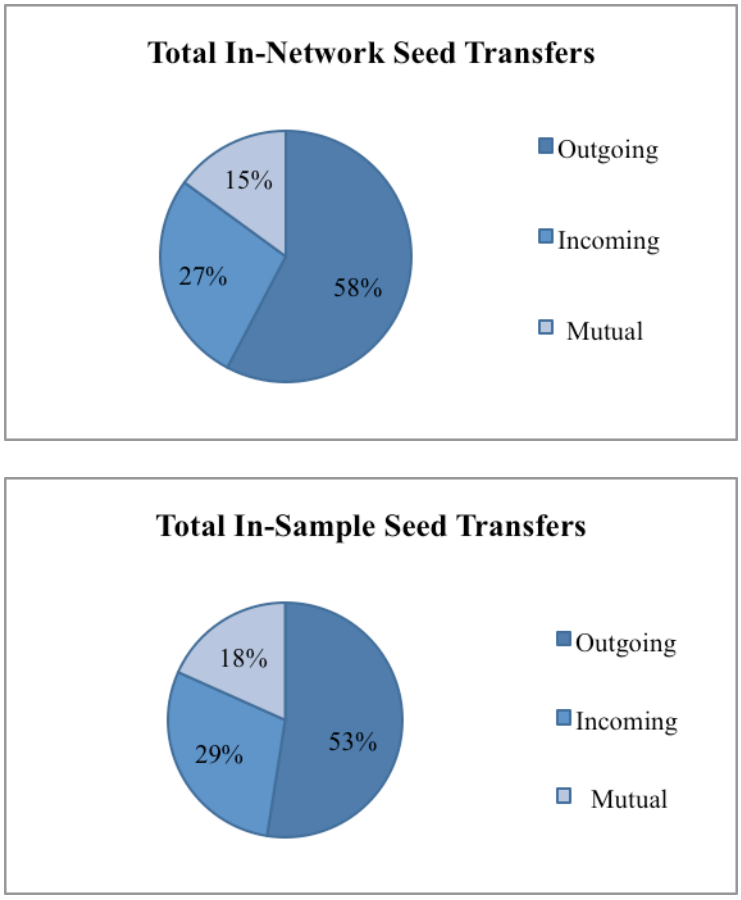


Figure 5.1 (top): Percent of outgoing, incoming, and mutual transactions for entire network. Figure 5.2 (bottom): Percent of outgoing, incoming and mutual transactions for in-sample network. Outgoing transfers include outgoing gifts, sales, or loans and incoming transfers include incoming gifts, sales, or loans. Mutual transfers include equal exchanges of seed.

Of all in-sample network transactions, 47 percent were recognized/agreed, 16 percent were recognized/contested, and 37 percent were unrecognized. Equal percentages (43.8 percent each) of recognized/agreed transactions were reported as incoming and outgoing, which is to be expected as all outgoing agreed transactions should be recognized by the recipient. On the other hand, the majority of recognized/contested and unrecognized transactions were reported as outgoing (62.5 percent and 59 percent, respectively; see Table 5.3) followed by reports of mutual exchange (25 percent and 23 percent, respectively). This means that for 87.5 percent of all recognized/contested and 82 percent of all unrecognized transactions, the person narrating the transfer described a situation where he or she was at least a provider of seed, if not a net provider. Chi-square tests indicate that the distribution of resolutions (agreed, contested, unrecognized) according to the directionality of exchange is slightly statistically significant (χ^2 (4) = 9.032, p = 0.06).

Table 5.3: Percentages of recognized/agreed, recognized/contested, and unrecognized transactions that were incoming, outgoing, or mutual within the in-sample seed network.

	Recognized/ Agreed, N=96	**Recognized/ Contested, N=32**	**Unrecognized, N=74**
Percent Incoming	43.8	12.5	18
Percent Outgoing	43.8	62.5	59
Percent Mutual	12.5	25	23

In some cases, the distribution of agreed/contested and unrecognized transactions might have been the result of farmers' propensity to disproportionately remember outgoing over

incoming exchanges or to overestimate how much they gave. In later seed network interviews, after farmers reported their seed exchange partners, I was able to ask people specifically about other farmers who had previously reported giving or exchanging seed with them. Sometimes people acknowledged these transfers, noting that they merely forgot to mention that transaction; sometimes they acknowledged the transfer, but narrated its details differently; and sometimes they said that no such exchange or gift ever occurred.

Recognized/contested transactions dealt with cases where farmers disagreed on the nature or the direction of the transaction. Of the 32 total recognized/contested transactions, only four (or two transaction pairs) involved disagreements over the type of exchange that occurred (gift vs. loan; loan vs. sale, respectively). The remainder involved disagreement over the directionality of the transaction. For example, sixteen transactions involved claims on one side that the transaction was an outgoing gift and on the other side that it was a mutual exchange (an "I gave to her/No, it was mutual" scenario); ten involved claims on both sides that the transaction was an outgoing gift (an "I gave to her/No, I gave to her" scenario); and only two (one pair) involved claims on both sides that the transaction was an incoming gift (a "She gave to me/No, she gave to me" scenario).

The four recognized/contested exchanges that did involve disagreement over the type of exchange all pertained to groundnut transfers. The contestation between these loan-sale and gift-sale groundnut transactions could represent two possibilities. In the case of the loan-sale, it is possible that the exchange originated as a loan but because of preferences against loans the transaction was turned into a sale as soon as the recipient had access to the money to pay for the seed. The second instance—that of the gift-sale—is a bit more uncertain. In The Gambia it is not uncommon for sellers—even those in the open marketplace—to add a "little extra" to a purchase,

offering a little gift to top off a sale. Much is enrolled into this practice, from establishing buyer-seller relations to giving something so that something greater might return one day. As I discussed in the previous chapter, sometimes this return is thought to come directly from God. In the case of the gift-sale of groundnuts, it is unclear if the reported gift was something extra put on top of a sale, unbeknownst to the receiver, or if both parties to the transfer simply interpreted and remembered the transaction differently. In either case, what is clear is that gifts, sales, and even loans can be contested and constructed through acts of remembrance.

Although a slight majority (53 percent) of all seed transactions mentioned during seed network interviews were either recognized/contested or unrecognized, people nonetheless found many ways to narrate acts of both giving and receiving. In general, narrating acts of generosity is not uncommon. Gifts given at parties and celebrations—particularly those from important relatives or acquaintances—were often announced over rented loudspeakers so that all in attendance might hear about impressive feats of generosity. Similarly unexpected acts of generosity are often openly discussed, sometimes to make clear the new, emergent relationships that giving can create. As many scholars have pointed out, displays or narrations of giving are ways that people not only construct the value of their own actions to themselves and society, but they are also attestations to one's moral persona and the extent of one's social network (Munn 1986; Sutton 2001; Graeber 2001; Buggenhagen 2011). The flip side of this is that narrating other people's lack of generosity is quite common too. Recalling Lisa Cliggett's (2005) discussion of how elderly Gwembe women in Zambia strategically remind their juniors of the sacrifices they have made for them, so do women in Jarra West subtly and sometimes not so subtly remind juniors, husbands, or friends about perceived lapses in giving. In this sense,

socially visible narrations can help keep pathways of access open by reminding others of both past generosity *and* perceived relapses into stinginess.

Seeds, however, often are not as visible as other types of gifts. They often pass hands in the privacy of the home. Because of their seasonality and lack of fungibility, seeds only pass hands under very specific circumstances, unlike gifts of, say, money. The sheer quantity of seed transactions that one woman might have in any given year can be a lot to remember, making remembrance of specific transactions more difficult. Nonetheless, people did, outside of the demands of seed network interviews, sometimes tell public stories about gifts of seed. In some sense, the naming and renaming of varieties after people who gifted or introduced them to others was perhaps the highest social manifestation of remembrance of past gifts. For, as the story of Soma and Sankwia attest, even when the details of a past gift were left unsaid, the meaning conferred through naming might be socially understood: names could serve as markers of those who had brought varieties to other people—either through varietal innovation, introduction, or sometimes, merely as a small gift between two friends. It was not uncommon for a woman who had received a gift of seed from another farmer to rename the variety after the giver. In some cases, she would eventually adopt the more standardized name, but sometimes keep the qualifier of "*so-and-so's" latake*, for example. In these cases, renaming was a way of making the relationship more visible, of making the relation more durable (Mützel 2009), and of recognizing the value of others' actions within the social realm (Munn 1986).

In narrating their seed transactions, farmers were simultaneously reflecting on the value and meaning of those transactions as well as the types of social relationships that those acts fostered. To receive seed and talk about it was a way to narrate one's social network. But, to give seed and talk about it was a way of narrating one's social network, one's generosity, and the

quality of one's saved seed or rice transplants. It is perhaps not surprising that farmers remembered, narrated, or recognized more of what they gave than of what they received. To better understand the tendency of farmers to represent themselves as net givers, I want to turn now to how farmers located meaning in acts of exchange and how they discussed what it is that seed transactions entail for the giver and the receiver.

The Situated Meanings of Seed Transactions

Just as many people put special emphasis on being net providers of seed, farmers attributed different types of economic, social, and spiritual meaning to seed transactions. Although men and women differentially interpreted the value of some of these transactions, others were widely agreed upon. For example, all farmers recognized that the value of sharing seed with others—whether via gifts, exchanges, loans, or sales—is that farmers will have seeds, food, and thus, as one woman explained, everyone will have "a call to lunch." Similarly, all farmers explained that being willing to provide seed to others fostered relationships that might open up future possibilities for access to seed. Attention to some of these meanings lends insight into why farmers put special emphasis on being net providers of seed, but it also underscores how farmers in Jarra West make sense of some of the tensions between generosity, interest and obligation that circulate in commentaries of the gift. Rather than separating out two spaces—one for pure generosity and freeness and another for self-interest and obligation—farmers' often recognized that these qualities of transactions might coexist within a single gift, exchange, or even sale. It was in how these qualities coexisted that they influenced the meaning, value, and relationality produced through acts of exchange.

As I discussed in the previous chapter, all farmers agreed that gifts and exchanges of seed produced reward from God (*baraajoo*). Such transactions were also simultaneously testament to one's goodness and generative of *baraka* (divine grace, blessedness) for the giver, and in certain circumstances, they might help "make one's name famous." Many men and women in Jarra West recognized that these aspects of gifting bled into and were identifiable in other types of transactions, such as exchange and sales of seed. But, it was the ways in which men and women represented the relative morality of gifts, exchanges, and sales of seed that differed. What emerged in women's discussions of the meaning of exchange, then, is something like a moral hierarchy, with gifting at the apex, then exchanging, and then selling. Men, who are more engaged in commercial production, sell seed far more often than women. Subsequently, men framed the meaning and value of various types of seed transactions differently, often insisting that sales and loans of seed—when carried out properly—were equally rewarded by God and generative of *baraka*.

It is in the ways that men and women explained the meaning of these different transactions that the interplay of self-interestedness, generosity, relationality and obligation within local conceptions of the gift begins to take shape. Gifts were testament to a person's moral character, but they also invited reward from God (*baraajoo*) and divine blessings (*baraka*). Exchanging seed brought similar rewards, even though women hinted that exchange did not portray the same degree of mutual love as gifting; similar rewards might come from loans and sales of seed, despite women's tendency to view such transactions as lacking of "neighborliness." For example, women discussed gifting rice seed as a reflection of mutual love and support between women, insisting that sales of seed did not reflect the same relational closeness. One elder woman explained it thus: "We [women] love each other, women never buy

seed." For some women, even exchanges represented a social distancing that was undesirable. One woman explained how her sister had come to her requesting seed. She said, "My sister came to me and said that she had lost the seed of her rice variety *sipa*….She said to me 'will you exchange seed with me?' I said to her, 'No way! I will gift it to you'….I would not exchange with her. I gifted her the seed."

Statements such as "women don't sell seed because they have pity (*hiina*, *balafaa*) for each other" or "women look out for each other" were often contrasted with men's practices of buying and selling seed. One woman explained that this gendered difference in exchange practices was due to the fact that "men never treat each other as family (*ñòo baadiyaa*)," once again pointing to the ways that different types of transactions were associated, particularly by women, with different types of relationalities.

To make sense of the differential relationality of seed transactions and the rewards effected through good deeds, many women's response was to rank the degree to which gifting, exchanging, loaning, and selling were rewarded by God. One woman explained, "the *barakoo* of gifting is greater than the *barakoo* for selling. There is also *baraajoo* for selling, but there is greater *baraajoo* for gifting." Taking this ranking into account, one woman explained how there is still *baraajoo* for selling. She said, "if I sell rice seed to another farmer (which she said she never had), I will still have *baraajoo* because now the other person has a variety that they did not have before."

It was this same aspect of selling—of providing farmers with access to varieties that they needed—that men said was rewarded by God. One man gave the example that to refuse to sell seed to a farmer might force that man to travel all the way to Casamance to find seed. But by selling seed, you save him a journey—hence there is *baraajoo* in that action. Enmeshed in cash

crop production, men did not attempt to quantify the relative *baraajoo* or *barakoo* of their selling compared to their gifting or exchanging. Similar attitudes toward selling seed have been reported elsewhere in The Gambia (Reece et al. 2011) and seemingly point to how the construction of value can be patterned by new economic practice. Men, however, did speak in detail about the affect of intention on the value of these different transactions. During an interview, one man explained that gifts of seed bring *baraajoo*, as do exchanges. But, he asked, "in exchanging one thing for another, what about other people's interest? [If it is a case of only] what is in my interest, you will not have *baraajoo*." In sales, loans, and exchanges, a certain degree of self-interest was expected; it was more a matter of degree or balance that was significant for assessing the morality and value of the transaction.

Givers of gifts, too, might have an interest in the gift, and this was readily acknowledged by men and women alike. As one woman, echoing many, put it, "if someone does not have a variety and you give it to them and one day you see that person eating, you can join them and eat." That farmers were very aware of the spiritual and earthly rewards of gifts would, under Derrida's (1992) definition of the gift, render them not gifts at all. Such awareness could also be read as nothing more than calculation of future material and spiritual returns. Yet farmers spoke of "pure hearted" gifts and even categorized some exchanges into more affective gifts because of the intention of the actors. These same gifts might bring *baraajoo*, *barakoo*, and future access to seed.

It is in the ways that men and women explained the value of these different transactions that the interplay of self-interestedness and generosity in local conceptions of the gift should be understood. Certain types of self-interest—like the possibility of future access—did not diminish or qualify the gift, while other types of self-interest—such as sole concern for one's personal

interest—pressed the boundaries of wickedness. In effect, the recognition that something might come back to the giver did not preclude the generosity or "pure heartedness" of transactions, while sole concern with one's personal interest did. The difference was in how and for what reasons farmers carried out such transactions. This subtlety of intention echoes Bloch and Parry's recognition that people "have to make…some ideological space within which individual acquisition is a legitimate and even laudable goal; but that such activities are consigned to a separate sphere which is ideologically articulated with, and subordinated to, a sphere of activity concerned with the cycle of long-term production" (1989: 26).

Rights, Personhood, Relationality, and Obligations

Gifts, exchanges, loans, and even sales of seed thus had the capacity to shape moral and social space. In the types of spiritual value seed transfers might produce and in the types of relationships they affirmed, giving and sharing germplasm shaped people, their relationships, and the types of ties that held them together. It was these three aspects of seed gifts—the production of moral personhood, the creation of affective relationships, and fulfillment of relational obligations—that farmers were getting at when they discussed the various dimensions of rights to give.

One day during an interview, a farmer described her right to give seed to other farmers. She said:

> If someone comes to me and says 'help me with a certain variety' I give it to them. Then later that person is working the variety and another farmer sees it. The second farmer will ask the first, 'where did you get that variety?' The first farmer will say, 'oh this came from Satu's place.' And the second farmer will ask, 'if I go to Satu will I have the variety?' And the first farmer will say, '*if you go there, you will probably have it, because she is not a wicked person*.'…And then, when the second person comes to me to ask for seed, I will say 'yes.' And I will also say,

> ‘ah, here is another variety too.’ If that other variety catches their eye, but if my seed is not plenty, I would still take out a little seed and say ‘take this’ (emphasis mine).

On one level, in this farmer’s description rights to give are that which a person ought to do for others who need a new variety: “if someone...says ‘help me with a certain variety’ I give it to them” she noted. But on another level, her right to give was also linked to her ability to construct herself to society in a way that was socially meaningful. Her explanation of rights to give did not end with her giving a variety to another farmer, but rather unfolded within a social milieu where she and others narrated her moral persona through the stories they recounted of her willingness to give. In most cases, to not assist someone with a variety when the variety was in one’s possession was considered a sign of wickedness (*jawiyaa*) while giving seed was often described in terms of expressing what it means to be a good human. Thus one of the few conditions that made refusing seed to another farmer morally permissible was not having much seed to give, although this farmer’s account explicitly addressed that issue by noting that she would still “take out a little seed” to give.

Farmers also discussed rights to give in affective terms. As I have already mentioned, farmers described seed transactions as both reflective and constitutive of social relationships: sharing seed was that which brought “the sweetness of relatedness” (*baadiyaa diyaa*) and fostered “humanity” (*hadamadiŋyaa*) between people. When I asked one farmer what she meant by “rights to give” she said, “rights to seeds maintain hope (*jikoo*) [because] then people without varieties will have a way to get access to new varieties.” Likewise, another woman explained “giving seed is a right because it makes people happy.” Farmers emphasized how rights to give exist because they build connectedness between humans and they fulfill certain moral imperatives, such as acting with “humanity.” At the same time, these affective relationships and

pathways of access might break down when someone failed to act with humanity. Women complained about those who always asked seed from others but never made any attempt to save seed themselves and pointed out that people who repeatedly refused to give seed to others would be met with similar treatment when they were in need new germplasm.

In the last instance, rights to seed existed by virtue of the relational obligations between certain people, whether kin, fellow farmers, or those in need. For some, the boundaries of relatedness were based solely on need. One farmer explained, "it is my right to go to a person who has a variety that I need because we are all farmers." Another farmer explained "if someone else needs a variety and you have it, it is your right to help them with seed." Statements such as these also underscored how rights to seed could be simultaneously entitlements and obligations, patterned by the relationships between different social actors.

The relationality of rights becomes clearer when the ambivalence of the concept of *ñantoo*—as both right and obligation—is taken into consideration. Farmers sometimes pointed to the ways that rights to give emerged out of gifts from others and the obligations of generosity that those former gifts created. One woman explained, "we give each others' rights to each other" (*ntolu ka ñoo la ñantoo dii ñoo la*). Her statement recalled the elder rice farmer's description of rights that I introduced in the previous chapter. He said, "if a person gives you [a variety], you know that they have given you a right. If you work that variety and you have something there, your own right is that you should give the variety to other people." Here rights can been understood as obligations that emerge out of certain transactive relationships, but which, rather than possessing an imperative to necessarily be reciprocated (which they sometimes are), inspire an imperative to gift on—much like the gifts of off-types sent by God to hard-working farmers.

Rights to give are thus in one sense obligations—ways of repaying past debts—but in another sense they are also rights to give as a way to foster future pathways of access, to practice humanity, to creates connectedness, and to invite reward in this world and the next. What is important here is the way that obligations to give are tied up with rights to request by virtue of the immense interdependency that can exist between family, friends, farmers, or other members of society. This relationality forces a reappraisal how farmers understand the obligations and debts that arise from gifts of seed and rights to give.

In general, farmers spoke of obligations and debts alike as *juloolu* or "ropes." Sometimes, in certain contexts, "holding someone's rope" is a type of debt that is burdensome. I have seen people worried when it was their time to "pay [back] a rope," especially if they felt that they were unlikely to be able to adequately repay a debt or to meet an expected obligation. In his analysis of Gambian saving strategies and credit agencies in The Gambia, Parker Shipton argued that any reference to *juloo* "consciously or unconsciously connote[s] slavery" (1990: 5). While reference to *juloo* can connote an immense debt—one that sometimes imparts great difficulty—people also regularly discuss the *juloolu* that emerge from engaging in everyday life. Going to visit a neighbor for a chat, giving a small gift, sharing food, or even helping another person on their farm are all types of activities that produce *juloo*. Women spoke of attending parties and ceremonies as a way of repaying a *juloo*. Nonetheless, people in Jenoi often recognized that when a person "has someone's rope," even a small rope, that she is not entirely "free." However, as one elder explained to me, "if you never take a rope [from someone else], then you will not build relationships. People will only offer for so long before they stop inviting you to this [or that] or calling you to eat."

Transactions of seed might be considered small ropes compared to, say, the types of gifts that close relatives and friends are expected to provide at a wedding or a naming ceremony. Still, like the elder's example of "calling someone to eat," small actions like gifts of seed produce ropes. These ropes exist between specific people, but in another sense, they can fan out, creating rights to give by virtue of having received and by virtue of sharing certain types of relations with others. In discussing rights to seed as *rights to give* farmers underscored how transacting seed is enrolled with the production of meaning, reward, and relationality. Their explanations also recall Mauss' (1990) discussion of the tension between obligation and voluntariness in the gift and serve as reminders that the division between freedom and obligation is often not hard and fast (Graeber 2001: 221). One woman summed it up when I asked her to clarify what she meant by rights to give. She looked at me and said, "[rights to give are] *ñantabaa*, *buuñaabaa*, *baraajabaa*" (great right, great honor, great reward from God).

Locating Claims to Seed in Debates over Intellectual Property

On some level the promise of future access that gifts of seed effect resembles what Stephen Brush has described as the "rule of reciprocity" amongst farmers that ensure that "those [farmers] taking seeds are expected to provide similar access to crop resources" (2007b: 1500). Yet, I think there are two very significant differences at play between reciprocity and what farmers in Jarra West are talking about, both which are important for how scholars understand the ways that farmers understand rights in crop germplasm. The first difference is that seed transactions in Jarra West are linked to, or reflective of, certain types of relationality between people. And this relationality is also grounded in certain types of conditions—such as the willingness to give when people need help or a willingness to receive a gift. In this sense,

reciprocating seed is thus not a "rule" as much as it is a skein of responsibilities that obligates people to one another and which emerges out of specific ways of being in society.

This difference between rules and relationality is similar to what Annette Weiner observed when she noted that "[w]hat is given from one person to another may initially and superficially be labeled 'pure gifts,' or 'generosity,' but in fact, what is being given may constitute a long-range set of obligations that switch back and forth between giver and receiver through time" (1980: 73). Along these lines, with seeds it may be the case that scholars must find the language to discuss "institutions" without recourse to "rules." Such juridical language at once misrepresents the fluidity of exchange and extends a way of thinking about exchange to contexts where farmers themselves never discuss rules. Rather, in Jarra West, farmers discussed relations, rights, rewards, and that which one should do for certain types of people.

Transactions of seeds and crop varieties were one way among several that farmers maintained and negotiated access to crop germplasm in any given year. In some cases, when women's nursery beds performed poorly, they went to request help with transplants from the farmers to whom they had given seed that season. Seed exchange also helped create the very social relationships through which future transactions might continue. For example when I asked one farmer, Sarata, why she went to an elder farmer, Mba Binta, to get seed of the variety *latake*, she explained that several years prior, it was her own mother-in-law who first gave *latake* to Mba Binta. As Sarata's mother-in-law was no longer farming, Sarata knew that if she went to Mba Binta, she would be able to get seed of that variety. Women, in particular, relied on such pathways to gain access to prized varieties and to ensure adequate planting material into the future. Seed exchange was, in this sense, one way that farmers invested "in the means of negotiation as well as the means of production" (Berry 1993: 15).

Another difference between reference to "rules of reciprocity" and what farmers in Jarra West are doing, however, is the emphasis placed on reciprocity itself. Sometimes seed was reciprocated, but in other cases there was not necessarily any guarantee that reciprocation would ever happen. Perhaps in the future the initial recipient would not possess the variety that the initial giver needed, forcing the giver to go elsewhere. Maybe the recipient would move away or quit farming. Or, more importantly, in other cases, gifts of seed were never about future equivalencies, but instead they were about what a person did for certain types of relations. As David Graeber has noted, in such a situation "what is equal on both sides is the knowledge that the other person *would* do the same for you, not that they necessarily *will*" (2011: 100, emphasis in original). In this sense, seed transactions opened up long-term relational obligations and they also fostered relationships for the sake of relations themselves (Sutton 2001).

Yet, neither do seed exchange practices fit the epistemological confines of self-interested calculation, where individuals are bent solely on creating favorable balances of debts and obligations. Although men and women approached the issue of self-interest in seed gifts a bit differently, both discussed limits to interest in the realization of the rewards from God. Some degree of self-interest was acceptable. For many it was just that "interests are integral to being human" (Mittermaier 2014b: 286). Nor were the obligations that came into being because of seed gifts necessarily burdensome to human freedom. That such gifts could create hope and happiness was in some sense dependent on their ability to maintain obligations, links, and connectedness. All of this blurs any sharp division between freedom and obligation, interest and generosity, and even public and private.

Yet it is from this in-betweenness that very interesting types of claims begin to take shape: claims that bring benefits to individuals and collectives, that return reward in this world

and the next, and that are more about rights to build relationships, to be recognized for it, and to fulfill obligations to other humans than they are about defining rights to things. In this particular case, it is through certain types of alienation (gifts and exchange done well) that property is made socially effective. Possession and use, those two aspects of Hegel's (2008) theory that more clearly align with the established categories of property, are nonetheless vital: indeed, one cannot give away something that he or she does not own. It is therefore through both use (cultivation) and possession ("having in one's hand") that people are able to give in the first place.

Emerging national and international property rights regimes have the potential to reorganize the ways that farmers access and exchange germplasm of protected varieties, ultimately raising a number of questions about how such legal regimes will affect local practices of farmer seed management (Eyzaguirre and Dennis 2007; Howard and Nabanoga 2007). Although statements about the freeness of farmer seed exchange are in many ways strategic, a discursive strategy that foregrounds the historic importance of seed flows amidst a legal and political environment that is increasingly exclusive and proprietary (Brush 2007a; Halewood 2013), they also reproduce Western notions of property, particularly the longstanding dichotomy of the public and private domains. As Brush has noted, "like the concept of the commons, common heritage and public domain are meaningful only in the epistemology of capitalism" (1999: 540). What is at stake in discussions about the inclusivity or exclusivity of seed exchange, then, is how claims that do not fit neatly into ether model of property are given recognition.

Recognizing that "a culture dominated by ideas about property ownership can only imagine the absence of such ideas in specific ways" (Strathern 1988:18) is a reminder to take very seriously the diverse ways that farmers articulate claims to seeds and the rights that such claims entail. To the farmers in Jarra West, seed transactions are simultaneously testament to and

productive of certain types of value, meaning, and relationality. Although there is pressure towards inclusivity in seed exchange, it is not merely free and open: it is generative of reward, connectedness, personhood, and future potentials. It is a way of asserting and fulfilling rights. It is a way of meeting and making obligations that keeps pathways open, and without certain types of action, those pathways could be cut off. This is perhaps one reason why making those pathways explicit through naming and narration was so important.

Seed claims thus required sharing, but because seeds are also personal property, such claims confer a certain degree of control over the social management of immediate transactions. In the instances that I discussed in the last chapter, such as the "bringing out" an especially excellent variety or in displays of great effort to keep varieties alive through tough times, the agency of specific individuals might be attached to the seed through naming or stories—at least until the variety is renamed. In those cases, when seeds travel through networks, the past agency of specific people travels with them, even, at times, atop someone else's work. This is what people meant when they talked about benefits in terms of "making one's name famous": recognition of their work and generosity circulated beyond their immediate network. Yet, because of the rewards conferred by God, the benefits of gifting might return to an initial provider of a new variety even when one's name was not made famous through naming or stories. To give a good seed brought immediate reward from God and people, but as it flowed through the hands of other farmers it also brought spiritual reward because others had food to eat. This is what one elder farmer meant when she said, "a good variety is very long (*jaŋjaŋta*), its benefit never ends." This complex of (potential) individual recognition, personal possession, earthly and spiritual reward, and collective seed-sharing claims meanders, and at times uneasily straddles, the boundaries of both individual and common property (Chander and Sunder 2004).

CHAPTER 6

SEED TRANSACTIONS AND COLONIAL ENCOUNTERS

To understand the knowledge/power practices we all contend with, it remains useful to recall and reassess the historical frames within which they appear –Kavita Philip (2008)

Up to this point I have focused mostly on how farmer seed management practices in Jarra West have or have not changed over the past two centuries, how farmers understand the process of varietal innovation, and how claims to seeds and germplasm are all wrapped up with situated understandings of work, value, rights, and obligations. In this chapter I consider another type of exchange: the germplasm transactions between Gambian farmers, British colonial officials in The Gambia, and other members of the British Empire during the early twentieth century. By doing this, I hope to bring attention to the "historical frames" that might inform current debates over biological enclosures and the transformation of property regimes. Many of the same themes from previous chapters run through this one as well—seed transactions and their representation, differential recognition and praise for varietal development, and the relationalities of exchange across perceived boundaries of social difference. But in this chapter I shift my ethnographic focus to the colonial archives (Stoler 2009), even though some of the traces of these colonial exchanges still circulate, albeit sometimes dimly, in the popular memories of Gambian farmers today.

Following from the work of Comaroff and Comaroff (1992) and Stoler (2009), my attention to colonial encounters and the historical imagination is an attempt to grapple with the ways that the organization, publication, and subsequent narration of historical plant transfers has

enabled the production of very specific types of knowledge about past botanical exchanges and the types of property claims that such exchange reflect. Today, knowledge about historic plant transactions seeps into and resurfaces in debates over international germplasm transfers, historic seed commons, and current practices of farmer seed exchange (Brush 1996a, 2007; Roa-Rodríguez and van Dooren 2008). This is particularly true in the case of arguments for the treatment of plant genetic resources as the common heritage of humankind—an argument often buttressed by claims about the existence of a global commons in plant genetic resources prior to the intellectual property enclosures of the late twentieth century. In these instances, scholars have pointed to the roots of common heritage "in the free exchange of seed among farmers, the long history of diffusion through informal and formal mechanisms, established scientific practices, and the application of the term to other resources in the international arena" (Brush 2007a: 298).

Yet there is much that is not known about the past diffusion of germplasm through formal and informal networks. Evidence of historic exchanges points to examples of giving, taking, stealing, and smuggling alike. Indeed, numerous scholars and activists have pointed to examples of colonial espionage in imperial economic botany as evidence against claims of commons or "free" exchange in the name of scientific research (Shiva 1997; Mgbeoji 2006). Theft and smuggling of high-value plant germplasm between colonial empires has proved one of the surest examples against an unfettered historic commons. Where relatively open transfers of botanic specimens did occur, the diffusion of plant specimens did not always coalesce through earnest commitment to free access to germplasm for the public good. Botanic transfers, as part and parcel of technologies of collection, were integral to the expansion of imperial power (Latour 1987; Schiebinger 2004).

Complicating narratives of freeness and theft, Londa Schiebinger (2004) has traced the rise of the notion that botanic knowledge and resources were the common heritage of the human race during the seventeenth and eighteenth centuries, a period, she noted, that also witnessed the expansion of economic monopolies over the very drugs being identified, processed, and procured through European bioprospecting efforts. While Schiebinger followed the ways that certain types of knowledge about plants, peoples, and claims circulated through these botanic transfers, she was more interested in the production of certain types of "culturally-induced ignorances" (2004: 3). Her work has refocused questions about what became known through botanical expeditions to questions about how some knowledge and claims-making was selectively parsed from official narratives, which types of knowledge, credit, and claims were elided through imperial botanic transfers, and why such ignorances surfaced in the first place (2004: 3).

From a very early date botanical exchanges were wrought with tensions between what was claimed and what was free, between what should be revealed for the benefit of humankind and what might be deployed for personal gain. And within this emerging system for plant transfers, certain actors had more power than others to shape claims-making and the boundaries of the public domain. As Schiebinger noted, "Europeans often recognized each others' monopolies and claims (while continuously conniving to overpower them), [yet] they tended to assume that non-European peoples had no proprietary claims to lands, resources, or knowledges. In the early modern world, the spoils of green monopolies fell to those who could police them" (2004: 17). European claims were further buttressed by the rise of formal botany, as the adoption of Linnaean nomenclature replaced indigenous plant names with (most often) those of great European men. It is in this sense that the political and cultural struggles of the seventeenth and eighteenth centuries enabled the dissemination of new types of botanic knowledge at the same

time that they facilitated the production of very specific types of ignorances about indigenous knowledge, local worldviews, and subaltern claims to botanic resources (Schiebinger 2004).

In this chapter I trace the exchange of groundnut germplasm among colonial officials and the collection of landrace groundnut varieties from Gambian farmers in the early twentieth century British colony of The Gambia. Both types of transactions—those between colonial officials and those between farmers and agricultural administrators—helped feed the burgeoning plant trials and varietal development that constituted much of the focus of the young colonial Department of Agriculture of The Gambia. Like botanic expeditions of the seventeenth and eighteenth centuries, twentieth century plant transfers were carried out within a social and political milieu that facilitated the production of certain types of knowledge about crop varieties, their discovery, their development, and their exchange. In the process certain types of knowledge and exchange were elided from accounts of seed sharing practices. What resulted, I argue, was the production of two major types of culturally-induced ignorances. The first, which has been challenged repeatedly by anthropologists and indigenous peoples alike (and even some colonial researchers, see Tilley 2011), was the notion that subaltern farmers had little to no role in the selection, maintenance, and development of varietal diversity. The second, which I address in this chapter, was the fashioning of official germplasm exchange practices that mirrored and which were read within the cultural, political, and economic expectations of European actors. Local practices of germplasm exchange, what these exchanges might have meant to farmers, and the indigenous claims that such exchanges advanced ultimately were pushed to the margins or disappeared from exchange accounts entirely.

In the sections that follow, I explore this process by tracing the rise of British bioprospecting and scientific plant breeding in The Gambia. I give particular attention to how

gifts of germplasm from Gambians and Europeans were represented in official colonial discourses, dispatches, and documents about plant transactions. Where gifts from Gambians were left out of official narratives, their absence was made more believable by official depictions of farmers' knowledge and skill. Scholars have given a great deal of attention to the ways that subaltern peoples were represented within colonial and European discourses, and have consistently pointed to how narratives of irrationality, backwardness, exoticism, and laziness circulated within colonial discourses about colonial subjects (Said 2003; Mudimbe 1988; Comaroff and Comaroff 1992; Bhabha 1994; Loomba 2005; Quijano 2007). I trace the deployment of some of these narratives by specific members of the British colonial administration as a means to explore how very specific visions of reciprocity and exchange were framed within the colonial archives.

Official colonial narratives often—though not always—underscored European agency in both crop varietal development and germplasm transactions. Such narratives reinforced dominant stereotypes at the same time that they served the careerism of colonial bureaucrats. Gambian contributions to plant trials and germplasm collection, on the other hand, surface mostly in what was not said. All of this combined to create a great imbalance in the ways that credit, reward, and the relations of reciprocity were fashioned in plant exchanges during the early twentieth century. The collection, exchange, and selection of groundnut varietals in The Gambia also preceded and inspired the development of a suite of "seednut storage laws" in the early twentieth century. Based on colonial administrators' readings of farmer seed management practices, these laws were meant to ensure an adequate supply of selected, high quality seednuts for farmers at planting time in order to improve the quantity and quality of the export crop to Europe. In the process, however, these laws were meant to regulate how Gambian farmers saved and exchanged

seednuts amongst themselves (CSO 2/1233). While seednut laws codified local practices at a time of immense social and economic transformation, when Gambian farmers were beginning to reevaluate their own seed exchange practices, they also represented a subtle shift in how the British colonial administration imagined their power over farmer seedstocks, a shift that necessitates questions as to how scholars think about the history of plant exchanges and germplasm enclosures.

A Global Commons and Intellectual Property Enclosures

A great deal of work has theorized the transformation of property relations in plant genetic resources since the emergence of intellectual property law for plants in the 1930s (Brush 1999; Roa-Rodríguez and van Dooren 2008; Halewood 2013; Halewood et al. 2013). Much of this work has pointed to the ways that novel late-twentieth century enclosures led to a proliferation of overlapping property regimes for seeds and crop germplasm, thereby fundamentally reorganizing the common, public, and private spaces within which plant genetic resources were managed. Just how plant genetic resources were managed across space and time prior to these enclosures has been the subject of great discussion, albeit one that has invoked—and sometimes taken for granted—a commitment to specific politics of scale that has positioned a historic global commons against the internationalization of intellectual property. Part of this positioning is understandable. As Roa- Rodríguez and van Dooren (2008) have pointed out, the treatment of plant genetic resources at a global scale has undergone an immense transformation, one that has resulted in an exclusive commons that enables the private appropriation of germplasm by commercial interests and the limitation of the rights of others.

Yet, the tendency to point to a global commons prior to late twentieth century enclosures raises a number of questions about the transformation of property regimes in plant genetic resources. How, for example, did the expansion of capitalism and the rise of European colonialism influence patterns of access to plant germplasm over many centuries and across diverse locales? Or, how—if at all—did state and colonial powers regulate local management of plant germplasm? Likewise, discussions of a global commons also necessitate questions about property and the historical imaginary. How did dominant colonial narratives about botanic transactions, for example, elide local knowledges, worldviews, and management regimes for plant materials? How did expectations of professionalism and careerism amongst colonial officials come to influence "common practice" in international plant transfers? While colonial and imperial expansion helped drive plant exchanges prior to intellectual-property based enclosures (Halewood et al. 2013), such flows are not necessarily testament to a commons. As a number of scholars have shown, there is a need to investigate how germplasm circulated, between whom it circulated, and how such circulation produced recognition and silences during the era of the "global commons" (Mgbeoji 2003).

Where scholars and activists alike have worked to historicize current plant enclosures, they have tended to focus on colonial plant exchanges either between states or amongst state-funded research centers of a single colonial empire. These histories have been invaluable for understanding current environmental politics and neocolonialism (Philip 2001, 2008), for exploring the relationship between the rise of the natural sciences, capitalism and colonial power (Brockway 1979), and for problematizing claims about state cooperation and reciprocity within an imagined global seed commons (Mgbeoji 2003). At the same time, examples of theft and

smuggling in colonial plant exchanges has been a key means for mobilizing activism against continued enclosures and expropriation (Dove et al. 2008).

It is therefore significant that the idea of a "global commons" in plant germplasm has persisted and continues to act as a foil to the recent creation of private rights in crop varieties. And it is therefore worth considering not only what actual exchanges of crop germplasm looked like during the period of a "global commons," but also how seemingly new forms of enclosure and governance have much deeper roots in colonial histories. In many ways, recent enclosures are not new as much as they are novel strategies for extending markets, refashioning property, and concentrating capital (Lewontin 1998; Boyle 2003; Prudham 2007). In light of Mary Louise Pratt's observation that "[r]eciprocity has always been capitalism's ideology of itself" (2008: 82), it is important to consider how the stories told about historic seed commons might themselves be the outcome of colonial and capitalist power relations.

Rather less is known about the patterns of farmer-farmer exchanges or farmer-plant breeder exchanges during the time when plant genetic resources were treated as a "global commons." Such exchanges can reveal a great deal about whether or not seeds were exchanged freely and openly between actors who held unequal power within the colonial system and how such exchanges were recognized or elided. They can point to how knowledge/power practices helped produce the axes of knowledge-inventiveness-appropriation that have buttressed claims of intellectual property. And, they can provide insight into how, in the absence of intellectual property rights in crop varieties, the colonial state began to justify governance of farmer seedstocks. Thus, in making claims about historical global commons, reciprocal plant exchanges and the novelty of current enclosures, it is important that research also focus on the experiences

of the many different actors involved in the emergence of the global system for germplasm exchanges.

Undoubtedly, part of the reason that so little attention has been given to farmer-farmer and farmer-plant breeder germplasm exchange is that accounts of these exchanges are rarely featured prominently within the historic record. When they do appear, they are generally lurking in the background, buried in the middle of an agricultural report, or voiced most apparent in what is not said. While ritual plant use has provided insight into historical transformations in agricultural production in other settings (Dove 1999), records of these very personal exchanges may or may not be included within farmers' own oral histories. In The Gambia, remembrance of these past transactions is facilitated through the names and stories attached to particular varieties. As a counter to official archival records, varietal naming points to the ways that various parties to plant exchanges differentially recognized the creative labor and contributions of farmers and colonial administrators.

Despite the limitations of the historic record, I attempt here to explore some of the germplasm exchanges that unfolded between farmers and colonial plant breeders in The Gambia. I pay attention to the presentation of such exchanges within colonial records and how the depictions of these exchanges are situated within broader discourses that helped to elide farmers' contributions to colonial plant breeding projects.

Colonial Plant Transfers and the Rise of Scientific Breeding

Prior to the establishment of a British colony in The Gambia, there was already an extensive system for plant prospecting, analysis, and exchange operating within the British Empire. This system had its roots in the inclusion of naturalists on European overseas expeditions beginning in

the eighteenth century and the founding of the British botanic garden network in the mid-nineteenth century. The botanic garden system facilitated the plant transfers and botanical analyses that enabled the development and distribution of plantation crops within new tropical colonies. With Kew Botanical Gardens in London serving as a central node for the analysis and reproduction of plant specimens, the botanic system was an important dimension of "making a colony a viable and profitable part of the empire" (Brockway 1979:451). Colonial emissaries sent specimens of plant germplasm to Kew to screen for their economic value. In some cases this included transfers of crop germplasm that might be of use to colonial production strategies aimed at meeting the growing industrial demands of European capitalist markets.

By the early twentieth century, bioprospecting and germplasm transfers had been refined over the course of almost 400 years of European expansion and colonialism (Brockway 1979). Within the British Colonial Administration, there was also a growing emphasis on the need to apply scientific management practices to better manage and exploit colonial holdings. Come the 1930s, the application of "scientific" management to the social, economic, and environmental development of the British colonies was seen as one of the best strategies to avert the perceived "impending colonial environmental and agrarian crisis" throughout the empire (Hodge 2002:1). Corollary to many colonial official's burgeoning belief in the power of science to transform agricultural production within British holdings was the tendency to point to native farmers as the source of the development problem. The native farmer who persisted in using "antiquated" and "inappropriate" agricultural methods was, in many ways, seen to be the cause of the looming crisis (Hodge 2002).

As British colonial agricultural policy turned toward plant breeding to address issues of crop yields and disease resistance, the colonial administration of The Gambia followed suit with

policy that would ensure widespread adoption of "selected seed." This included trials of a number of cultivated and managed plant species that were thought to possess economic potential—particularly for export—such as sesame, palm, cotton, and groundnuts (CSO 2/104; CSO 2/185). Part of efforts to improve the quality of groundnut seed stocks in The Gambia involved importing seed from other parts of the British Empire and from the agricultural research stations of other imperial powers. The exchange of germplasm between the Department of Agriculture of The Gambia and other parts of the British Empire was open and reciprocal between colonial administrations, although recipient colonial governments often would cover the cost of shipping large quantities of germplasm from other parts of the Empire. In many ways this practice was an early precursor to the principle of "free availability" of germplasm that later arose within the international gene bank system and aimed to operate under the premise of "unrestricted exchange of banked germplasm among plant breeders and other scientists" (Kloppenburg 2004:166).

In the British Colony and Protectorate of The Gambia, another way that the reorientation toward scientific development played out was through increased emphasis on prospecting crop germplasm from within The Gambia itself, particularly for seed of economically important crop species such as groundnut. Yet, agricultural administrators treated germplasm exchanges from Europeans and Americans and exchanges with Gambian farmers very differently. In particular, colonial discourse and practice within the nascent Department of Agriculture obscured Gambian farmers' contributions of germplasm to early plant breeding projects by largely "writing out" the presence of Gambian farmers from official colonial accounts. Actual Gambian farmers, as suppliers of experimental germplasm to the Department of Agriculture, only appear dimly in accounts of early bioprospecting. This practice of writing, accounting, and acknowledging, in

turn, produced very specific types of knowledge about colonized and colonizers, or specifically in this case, farmers and agricultural "experts."

This differentiation was facilitated by three related processes. First, colonial agricultural officials formally acknowledged contributions of germplasm from other Europeans, whereas they did not extend the same types of recognition to Gambian farmers—individually or collectively—for their contributions to colonial plant breeding efforts. Second, like broader narratives about the "antiquated" agricultural methods employed by native farmers (Hodge 2002), Gambian farmers' agricultural skill and knowledge was often—though not always—devalued and derided within official documents. At times, in passing traces in the archives, the true ambivalence of these narratives emerges: General, almost stock colonial narratives about the need for "systematic education" of native farmers were often belied by other instances where the colonial government imported groundnut seed so that local chiefs might make trial it on their own farms (CSO 2/104; CSO 2/138).

In general, these divergent attitudes toward recognition and elision, collection and distribution underscore some of the tensions inherent in colonial projects. In particular, I argue that they buttressed—whether intentionally or unintentionally—the credibility and authority of certain discourses about exchange. It is clear that seed was moving in both directions: from farmers to colonial officials and from colonial officials to farmers. Colonial officials attributed very specific types of value to these exchanges. As I have discussed over the past several chapters, Gambian farmers today also locate various types of meaning in acts of exchange. What gets lost in the slippage between recognition/elision, collection/distribution, and even praise/derision are the ways that Gambian farmers approached and made sense of these transactions.

Finally, it was during this time, too, that the British Empire began to rely on agricultural and scientific experts for the drafting of colonial policy. Often the prescriptions of these "experts" were in conflict with the opinions of local colonial administrators and agricultural officials, who were more often trained as soldiers than as scientists. Expert or not, all of these European officials brought with them their own epistemological and cultural biases (Swindell 2013). The resulting affective tensions within the colonial ranks caused by the rising prominence placed on scientific management carried implications for Gambians. Amidst contests over the ranking of authority and knowledge, the question of farmers' expertise (or assertions of lack thereof) was enrolled into the politicking and careerism amongst colonial officials, whose own knowledges were increasingly being ranked.

That seed transactions from farmers to colonial officials were not given the same recognition as those between European officials is made more poignant by the forms of recognition that farmers granted to colonial officials for their "gifts" of seed. To this day, one of the groundnut varieties that I trace in this chapter is named after the first Director of the Gambian Department of Agriculture, A.J. Brooks, who selected and developed it out of imported seedstock. Farmers throughout The Gambia refer to this variety locally as *Burukusoo*, although that was not the name chosen by Brooks himself. He had named the variety Philippine Pink. Nor is *Burukusoo* the only variety named after colonial officials. Both rice varieties in Jenoi, *Meeji koyo* (now lost) and *Meeji wuleŋo* (extant), were named after the colonial "Major" who introduced the seed to the region. Unequal recognition and elision of agency raises further questions about the history of germplasm transfers: first, how is it that these practices have come to shape the ways that early exchanges were interpreted by later scholars—particularly those who have advanced claims about historic commons in crop germplasm; second, how have these

practices—and their later (re)interpretations—selectively framed what "free" exchange means in the first place?

The Rise of Bioprospecting

While the British prospected many different botanical products in The Gambia, groundnuts received the most attention from the colonial administration because of their economic importance to the colony. Groundnuts (*Arachis hypogaea*) were originally domesticated in the Amazon Basin, and were first introduced to West Africa in the 16th century by Portuguese who traded along the coast (Crosby 1994). While Senegambian farmers adopted groundnuts into their agricultural repertoire from an early date, European travellers visiting The Gambia in the early decades of the 1800s noted that Senegambian farmers cultivated groundnuts almost exclusively for the production of groundnut hay to feed to livestock. Further inland, farmers planted groundnuts as a back-up crop in case of failure of the millet crop (Brooks 1975). Thus for almost three centuries prior to the rise of British colonialism, Senegambian farmers planted, worked and selected groundnuts, which were planted for their importance as both human food and animal fodder.[37]

Not long after the establishment of a permanent British settlement in The Gambia in 1816, European traders became interested in the potential of groundnut production for export to European markets. The first groundnuts, a shipment of one hundred baskets, were exported from The Gambia to the West Indies in 1829 and 1830. In 1834, 213 baskets of groundnuts were exported to Britain, and by 1840, over 1,100 tons of groundnuts were being exported from The

[37] Although the spread of groundnuts throughout Senegambia can be credited to their value for food and fodder, production of groundnuts was still tied into global trade relations in that they provided a high-quality fodder that made trade in horses possible throughout much of the tsetse zone (Brooks 1975).

Gambia, headed to Britain, the United States, and elsewhere (Brooks 1975). As Gambian farmers expanded their production of groundnuts—which they sold to European traders—they bought more European goods. The colonial government in Bathurst taxed imports of European goods and exports of groundnuts—the cost of which were all passed on to the Gambian producer while providing revenues for the British government (Wright 2010). As the demand for oilseeds in Europe grew, Gambian farmers responded to new economic opportunities and massively expanded their groundnut production (Brooks 1975).

Figure 6.1: Men measuring groundnuts at a Gambian buying station. Undated photo. Source: The National Archives of the United Kingdom.

As discussed in chapter two, one of the unique social responses to changing demands for groundnuts as a cash crop was the rise of migrant farming, or strange farming, throughout Senegambia. From an early date, the British recognized the importance of strange farmers for ensuring large groundnut crops for export (Sallah 2013). If the production of groundnuts as a cash crop rose steadily after the advent of British colonialism in the early nineteenth century, it was further encouraged by a number of colonial policies created following the formal establishment of the protectorate in 1893, which brought the territories beyond Bathurst, the capital, under British control and established a system of indirect rule. In 1893, the British colonial government in Bathurst passed a series of ordinances that established licensing fees for groundnut traders, taxes for strange farmers, and taxes for each family compound within the Protectorate. These new ordinances diverted payments that were traditionally owed to local rulers and village heads into the coffers of the British colonial government. Significantly, because these payments were required not in-kind—like some previous payments—but in specie, they necessitated that farmers seek cash income (Wright 2010). One of the surest ways for many farmers to obtain specie was by planting groundnuts as a cash crop. With the creation of the Protectorate, groundnut production in The Gambia expanded rapidly as Gambian farmers turned to cash cropping and as existing groundnut farmers increased the area that they planted.

Also after the formal establishment of the protectorate in 1893, imperial bioprospecting in The Gambia rose rapidly. Bioprospecting efforts focused both on crop varietal improvement and the identification of other potential crops or non-cultivated species that could be of economic value to the British Empire. In the early twentieth century, British West Africa had a single Inspector of Agriculture, Gerald C. Dudgeon, who travelled throughout the colonies appraising, cataloging and collecting agricultural and forest products. The specimens that he collected were

sent to Kew Gardens for analysis. In his visit to The Gambia in 1908, Dudgeon identified and described 30 economically useful plant varieties and species, and he collected nine plant and mineral specimens, which he sent to Kew. In 1921, Dudgeon's successor, M.T. Dawe, identified 119 plant specimens in the colony, including their indigenous names and local uses. That year he sent approximately 65 plant specimens to Kew for analysis (CSO 2/322; CSO 2/132).

Great attention was given to specimens of rubber, cotton, oranges, palm kernels and groundnuts, all of which might form the basis of export markets to England (CSO 2/104; CSO 2/185). The colonial government also sought seed of groundnuts and other economically important crops from elsewhere that might be tested for yield. For example, in 1909, the colonial

Table 6.1: Rise of colonial bioprospecting in The Gambia. Sources: Reports on the Agricultural and Forest Products of the Gambia River Protectorate for 1906, 1908, 1910 (CSO 2/322 & CSO 2/132) & Agricultural Needs Report of 1921 (CSO 2/322)

Year	**No. of species or varieties identified for consideration**	**No. of species or varieties sent**	**Examples of germplasm sent**
1906	25	12	2 varieties of *Sorghum bicolor* (sorghum), *Digitaria exilis* (findo), *Manihot esculenta* (cassava), *Oryza sativa* or *O. glaberrima* (rice, species unidentified), *Gossypium punctatum* (cotton), *Vigna unguiculata* (cowpea), *Pennisetum glaucum* (pearl millet), *Ceara sp.*, *Landolphia sp.*, *Terminalia albida*
1908	30	9	*Vigna unguiculata* (cowpea), *Carapa guianensis*, *Khaya senegaliensis*
1909-1910	44	17	*Gossypium punctatum* (cotton), *Vigna unguiculata* (cowpea), *Oryza sativa* or *O. glaberrima* (rice, species unidentified), *Arachis hypogaea* (groundnut)
1921	119	~65	Type of material sent unclear.

administration in Bathurst imported two bags of Coromandel groundnut seed that was to be given to the Chief of Sukuta, Karanta Cham, for cultivation and trial. The chief was expected to keep records of the trial, which were to be returned to the colonial administration in Bathurst (CSO 2/138). From an early date, then, Gambian farmers were involved in the distributed testing of groundnut varieties—not merely for themselves—but for the colonial government.

Collections and Trials in the Early Agricultural Department

As early as 1906 members of the Colonial Office in England had recognized the need for "systematic agricultural experiments…to be conducted at an experiment station under Government auspices" in The Gambia because of growing concern over groundnut diseases, in particular (CSO 2/104). By the early 1920s, it was recognized that one of the best ways to address emerging agricultural concerns was through he creation of a government department that would focus solely on issues of agricultural production in the colony. By 1924, the colonial government of The Gambia had established its very own Department of Agriculture. Headed by A.J. Brooks, at first the young Department was largely devoted to identifying, selecting, and putting into trial crop varieties that were of economic importance to the colonial government.

While it carried out work on a variety of crops including maize, cotton, palm sesame, and, eventually rice, the Department of Agriculture's primary focus from its inception was on groundnut improvement: In particular, the British were keenly interested in procuring high-yielding groundnut varieties with heavy nuts and high oil content that could fetch a good price on the international market. The Chamber of Commerce in Europe had begun to complain to the colonial administration of The Gambia about adulteration in the groundnut crop with sand, sticks and other types of foreign matter. The free fatty acid (FFA) of Gambian groundnuts was also

perceived as a problem for export, as higher FFA content made soap manufacturing more difficult for European manufacturers, and thus less desirable for purchase (CSO 2/639). This posed an intractable problem for the colonial administration, which was intimately concerned about the purchasing price of Gambian groundnuts on the international market (CSO 2/639).

The British colonial government was also keen to identify groundnut varieties with good disease resistance. The early twentieth century witnessed the rapid spread of two groundnut diseases, *Cercospora personata* and Rosette disease, throughout the colony and protectorate, both of which threatened to substantially reduce crop quality and crop yields. All of these factors combined to make the identification and acquisition of new groundnut varieties for trial and selection more important. Just one year prior to the official formation of the Department of Agriculture, A.J. Brooks had begun to conduct crop trials on a number of different groundnut varieties that might demonstrate resistance to these two diseases. One of the early varieties that promised resistance to Rosette was a variety that was eventually named "Basse" (a city in far eastern Gambia). Brooks described the provenance of this variety in a 1925 report of the Department of Agriculture. Referring to himself in the third person he wrote:

> This variety, selected by the Director during his 1922 tour, and named Basse from its being found growing near that town maintained its commendable characteristics. It showed a fair degree of resistance to "Rosette" disease (CSO 2/739).

Only in a later description of the Basse groundnut does it become clear, however, that the variety originated from a Gambian farmer's field. Some years after that original description, in the Annual Report for the Agricultural Department for 1931-1932, Brooks provided more detail about the origin of the Basse variety:

> In 1922 I selected groundnut seed from vigorous plants growing on a *native farm* at Basse for the purpose of seed selection, as the Department was not then established I arranged with Col. Wannell, Commissioner *to have these seeds grown* and the resultant

> crop handed over to me, and this formed our first variety which I named "Basse" (CSO2/1233, emphasis mine).

In the early crop varietal trials carried out by the Department of Agriculture, Basse proved excellent. In 1932, Director Brooks wrote of Basse that "this variety still remains one of our best seed varieties and continue[s] to show marked tolerance to virus disease" (CSO 2/1233). Out of dozens of varieties given trial at the Department of Agriculture, two other varieties, Philippine White and Philippine Pink, also stood out for their high yield and disease resistance. In 1924, The Gambia received a shipment of one ton of Tennessee Red groundnut seed from the Philippines. From that shipment, Director Brooks selected and renamed two strains: Philippine Pink, of an upright habit, and Philippine White, which was of trailing habit (CSO 2/1233). In the early 1930s, after a number of field trials and analyses, samples of Basse, Philippine Pink and Philippine White were sent to Kew for analysis of kernel to shell ratio, oil content and free fatty acid content. Basse surpassed both Philippine White and Philippine Pink in yield, and was only second to Philippine White in its oil content (Table 6.2).

Gambian farmers contributed valuable germplasm to colonial plant breeding efforts, but recognition for such contributions was rarely given, individually or collectively. Instead, most often Gambian contributions to collection and trial appear only in passing reference to collections at "native farms" or "having seeds grown" for the Department of Agriculture. The few Gambians who did receive specific mention for their contributions of plant germplasm to Departmental efforts tended to be high-ranking men. For example, buried in the middle of the 1925 Report of the Department of Agriculture, Brooks noted that the chief of Fulladu East, a district of The Gambia, had travelled to Casamance in Senegal and returned with a "promising type of sorghum." The chief had recognized the quality of the variety while away on travels, and he had given a sample to the Department of Agriculture for trial and reproduction.

Table 6.2: Characteristics of three groundnut varieties under trial in 1924. The three main varieties "Basse," "Philippine Pink," and "Philippine White" were compared against the "standard groundnut" grown throughout The Gambia. F.F.A. stands for "free fatty acid" (CSO 2/1233).

Variety	Kernels	Shell	Oil	F.F.A.
Basse	78%	22%	51.8%	0.49%
Philippine Pink	76%	24%	50.9%	0.15%
Philippine White	75%	25%	52.4%	0.65%
"Standard Groundnut"	75%	25%	36%	2%

Yet even when colonial agricultural officials did recognize the contributions made by Gambian farmers, they did not recognize Gambian farmers and Europeans in the same ways. That same year the young Department of Agriculture conducted trials on a number of other crop varieties obtained both locally and from research stations abroad, including varieties from Nigeria, Mauritius, and Senegal. At the end of the same report that had noted the chief of Fulladu East mid-text, formal recognition was given to those who had contributed seeds and germplasm for research. A.J. Brooks wrote:

> The thanks of this Department are due to the following for contributions of plants and seeds: The Royal Botanic Gardens, Kew; The Imperial Institute, London; The Agricultural Department, Tanganyika; The Ministry of Agriculture, Egypt; The Botanic Station, Brignoleto; The Argotti Botanic Gardens, Malta; The Department of Agriculture, Dakar; The Gardens, La Mortola, Italy; His Excellency Captain C.H. Armitage; and the Reverend Father Meehan (CSO 2/739).

No mention of thanks was given the Chief of Fulladu East. Neither did earlier reports give recognition to the farmer who provided the "Basse" groundnut. No recognition was given to a

single farmer or other Gambian. Instead, formal recognition for contributions of germplasm was extended only to other European officials and European or colonial institutes. This was a common practice that appeared in a number of formal reports for the Department of Agriculture—even those not authored by A.J. Brooks—in years where germplasm was obtained for trial from other Europeans or colonial departments, including the Annual Reports for 1934-35 and 1939 (CSO 2/1539, CSO 2/1794). Between these same years, however, plant germplasm collections from farmers within The Gambia continued, albeit without recognition given to any Gambian farmers (CSO 2/1703).

The growing importance placed on scientific expertise within the British Empire often created tension among local colonial administrators, metropolitan bureaucrats in England, and local and metropolitan scientific "experts" (Swindell 2013; Weber 1978). Contests, antagonisms and differences of opinion between colonial administrators were often enrolled in the advancement of individual careers. At the same time, praise, recognition, and the potentials for collaboration that approbation might entail was also part and parcel of the careerism of colonial administrators. For centuries botanical specimens and rare flora had served as "capital for exchange" within imperial networks (Schiebinger 2004). Treasured plant specimens could advance careers and foster professional connections. At least some of these early transactions were made more durable by renaming specimens after those who "found" or "introduced" them to European scientific circles, thereby advancing professional reputations.

With the rise of scientific plant breeding, this careerism circulated in the recognition given to European contributions and in the official praise offered at the end of every Annual Report. As common professional practice, it solidified certain expectations about how seed transfers should and should not be carried out between researchers and administrators.

Germplasm transactions were open, and in the ways that they were recognized for their openness these plant transfers had the ability to advance individual careers. Subaltern farmers, in their status as colonial subjects, did not appear to merit the same recognition. What resulted was a strange and pernicious imbalance in representation that only marginally recognized farmers' agency in colonial plant breeding projects while establishing "common practice" for germplasm transactions among plant breeders and state officials.

Constructing Farmers and Experts

Colonial representations of Gambian farmers' knowledge and skill facilitated the production of institutional ignorances about local agricultural knowledge and farmer seed management practices. Since at least the sixteenth and seventeenth centuries, Europeans had come to appreciate the authority and accuracy of indigenous botanical knowledge (Cohn 1996; Schiebinger 2004). Native peoples thus became the starting point for European botanists and collectors, who, despite their dependence on the knowledge of local peoples, also acted as filters for the types of information that was deemed worthy of collection. Thus for many centuries prior to the rise of scientific plant breeding, botanical specimens and facts about them circulated within formal botanic circles, but how those specimens fit into non-European schemas of the world did not.

By the nineteenth century, however, many Europeans in the colonial world also brought with them Enlightenment ideas about their racial, social, and scientific superiority that tempered how many of them, though not all, represented local peoples (Wright 2010). Colonial narratives about subaltern farmers in The Gambia perpetuated stereotypes of lazy, irrational natives, who possessed little agricultural skill, much less the proclivity to engage in seed selection. It is

important to note that these narratives were neither static nor solid, but rather shifted over time, sometimes belying other colonial practices that engaged farmers' help in varietal trials.

Although the colonial agricultural administration consistently encouraged farmers to expand groundnut production, which drew labor away from the production of foodstuffs, local food shortages were often blamed on farmers' unwillingness to work. For example, Brooks argued against government programs put in place to subsidize local food shortages because "the general shortage of food crops in the Gambia was in [his] opinion, not due to uncontrollable natural conditions such as the general failure of the crop cultivated, but to the fact that the native had been taught to be improvident by the annual distribution of rice by The Government." Brooks wanted to do away with the policy, as it would deter what he saw as the "subsidized laziness" of the Gambian farmer (CSO 2/739), and argued instead that what was needed was "increased effort or the part of the farmer."

If Gambian farmers' general work ethic was called into question, agricultural officials also doubted the quality and skill of local labor for running formal crop trials. In a later report Brooks wrote, "A good deal of useful work has already been done in raising and distributing improved varieties on our own farms. This work has, however, from time to time been seriously interfered with through our inability to procure satisfactory and regular labour…." (CSO 2/871). After the formation of the Department of Agriculture, narratives that subordinated Gambian farmers' understandings of the basics of agronomic experimentation were stark contrast to previous practice where the colonial government had disseminated groundnut seed to specific Gambian farmers for trial. For example, in the 1930-31 Annual Report, Brooks wrote that the Department of Agriculture had hired a number of Gambian staff. Describing one of the agricultural trials carried out in 1930 by the Gambian staff he wrote, "It was realized that results

might be poor, but it was expected they would furnish some information…and also act as a training ground for the African Staff in methods of experimentation, of which they were ignorant" (CSO 2/1095).

The stereotypes constructed about Gambian farmers also situated them within a hierarchy of intelligence and skill—even the most intelligent young Gambians could look forward to becoming only the junior officers of European agricultural staff. Describing the hiring of African assistants at the Department of Agriculture, Brooks wrote that "[g]ood progress has been made in the agricultural training of youths at Cape St. Mary. The more intelligent labourers are being trained in the more complicated detail work connected with field experimental work such as will qualify them for junior posts on the staff of the Department" (CSO 2/1095). The denigration of Gambian's agricultural skill also carried over to colonial discourse about farmer seed selection. When yield of groundnuts and other crops were low, blame was often placed directly on "the absence of any form of selection" carried out by farmers (CSO 2/889). When it was recognized that farmers were discerning in setting aside seed stocks, credit for such knowledge was attributed to European officials (CSO 2/889). The simultaneous derision of farmer knowledge and praise of European agricultural expertise produced a longstanding discourse in which the absence of farmer seed selection and contributions of germplasm to colonial plant breeding projects were rendered all the more believable.

Undoubtedly this positioning drew strength from and reproduced stereotypes of the "other" that was central to the project of colonialism. But, the degree that this positioning was also a response to growing tensions between experts and administrators within the colonial admirations deserves attention. From the founding of the Department of Agriculture, Brooks recognized the discordance amongst various colonial departments over the need for a specialized

agricultural program. In 1926 he wrote, "but in a Colony where Official opinion is divided as to the necessity of such a department, and where almost every step forward is regarded as an invasion of someone's closely guarded preserves, the difficulties become so great, as to neutralize and render ineffective the strenuous efforts being made towards progress" (CSO 2/639). Instead, Brooks appealed to Senior Government Officers that "the existing feeling that the agricultural department is a necessary evil which has been thrust upon the Colony and which must be endured, should be replaced by the realization that it is through the activities of this Department alone that prosperity can be restored" (CSO 2/639).

By the 1930s, the desire for input and assessment from "scientific experts" was growing more prominent within the British Empire (Hodge 2002). Amidst growing tensions within the colonial ranks, these interpersonal positionings among bureaucrats helped produce very particular types of knowledge about native farmers, their knowledge, and their skill. This phenomenon is well captured by a letter written by Director Brooks to the Honorable Colonial Secretary in 1932, regarding a letter from the United Africa Company Limited that expressed concern over the state of the groundnut seedstock in The Gambia. The United Africa Company requested that the Department of Agriculture take note of recent efforts made by the French in Senegal to ensure a better level of quality in their groundnut seedstock. Director Brooks, in response, recounted the work of the Department on that matter—referring back to 1922 when, owing to a poor groundnut crop, the Chamber of Commerce asked that the government of The Gambia import bulk seed from Senegal. Brooks wrote:

> I refused to permit this….A section of the Liverpool Chamber of Commerce brought pressure to bear by a deputation to the Colonial Office, the Secretary of State acting on their advice sought the views of Mr. T. Dawe….Mr. Dawe agreed that Senegal seed should be imported…. I again refused to permit seed to be imported in bulk….The result being my action was considered to be correct….and the following crop was grown from seed saved from the previous bad crop. It

> proved to be one of the finest quality crops ever grown in the Gambia. At meetings held in the Protectorate at the period the importance of seed selection at the time of sowing was forced upon the farmers….and the result was as stated above (CSO 2/1134).

Brooks was making the case for his own sound judgment and agricultural knowledge against the advice of M.T. Dawe, one of the agricultural "experts" who served as a travelling advisor to many British colonies throughout West Africa at the time. Brooks' training in agriculture, unlike that of Dawe's, was in the form of a Teacher's Certificate that he had been awarded by the Royal Horticultural Society (Swindell 2013). It is significant that Brooks' self-positioning against the expertise of Mr. Dawe simultaneously alluded to the inability of the Gambian farmer to select seed, save proper training. Brooks made clear, however, the extent to which his own efforts at the reeducation of the Gambian groundnut farmer were responsible for the production of an excellent crop in the subsequent year. In the tensions at play between colonial administrators and scientific "experts," the lack of knowledge and skill of Gambian farmers became a tool for both taking credit and displacing potential blame.

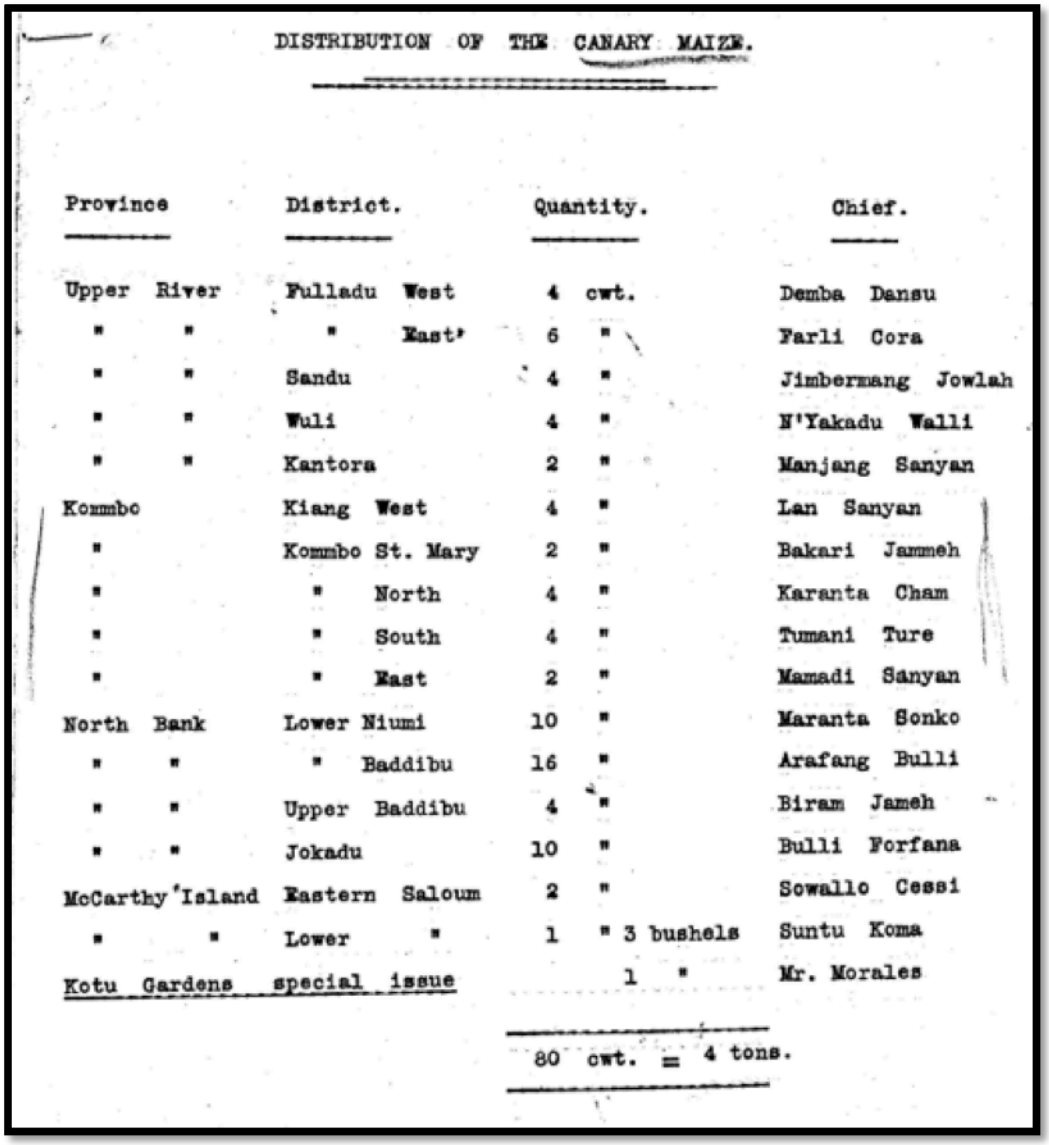
All European staff did not reinforce such stereotypes of Gambian farmers, however (Swindell 2013). For some colonial officials—such as E. Hopkinson, longstanding Commissioner to the North Bank Province—what appeared as "haphazard performance" was in fact practice informed by "the vast amount of traditional knowledge…accumulated by the growers and their forebears" (CSO 2/774). It was often the very officials who spent the most time with Gambian farmers through extended periods of work in rural locales who presented accounts of local agriculture that challenged dominant stereotypes. Nonetheless, narratives about unskilled farmers persisted, circulated, and were sometimes deployed strategically by Europeans within the colonial administration. The result was an amalgamation of narratives that created a strange ambivalence: Gambian farmers were at once unsung providers of important germplasm to

colonial plant breeding and, yet, too little acquainted with agricultural production to be skilled farmers. Farmers might foster disease-resistant varieties, but they knew too little about seed selection to be given credit for it. Such ambivalence evokes Homi Bhabha's (1994) discussion of the stereotype in the ways that the production of "African farmers" and "European experts" relied on both the recognition and disavowal of difference, where difference was marked as lack of knowledge, lack of skill, and, when disavowed, a lack of recognition.

Of course, over the course of the twentieth century, negative stereotypes about lazy, irrational farmers have repeatedly been challenged by work in the ethnosciences on the rationales behind shifting cultivation (Conklin 1954; Frake 1962; Johnson 1974), weed management (Dove 1986), farmers' maintenance of crop diversity (Brush 1992; Nazarea-Sandoval 1995; Nazarea 1998), and farmer experimentation (Richards 1986). In the early twentieth century, however, colonial narratives about subaltern farmers helped naturalize the somewhat ironic position of germplasm collection practices: Gambian farmers had helped create something worth taking, but not worth recognizing. Negative stereotypes instead helped reinforce the notion that farmers might be so remiss in their skill as agriculturalists that that they did not really understand the value of what they had. In the process, at least for collections carried out in The Gambia by European officials, the identification of excellent germplasm was credited to European colonial officers. In the process, a certain type of knowledge about farmers was produced—one that gave little attention to the social, cultural and agronomic fluidity of farmer seed management.

At the same time, the colonial agricultural department rolled out programs for seed and seedling dissemination to Gambian farmers, a form of "open exchange" for which meticulous records were kept (CSO 2/138). As a result, fairly detailed accounts exist of germplasm transfers between Europeans and of germplasm transfers from Europeans to Gambians (Figure 6.2). But

the reverse gifts—those from Gambians to Europeans—are almost written out. In the global germplasm exchanges that took shape during the first half of the twentieth century, this disparity in modes of recognition served to produce certain types of free exchange that fit well into European visions of reciprocity.



DISTRIBUTION OF THE CANARY MAIZE.

Province	District.	Quantity.	Chief.
Upper River	Fulladu West	4 cwt.	Demba Dansu
" "	" East	6 "	Farli Cora
" "	Sandu	4 "	Jimbermang Jowlah
" "	Wuli	4 "	N'Yakadu Walli
" "	Kantora	2 "	Manjang Sanyan
Kommbo	Kiang West	4 "	Lan Sanyan
"	Kommbo St. Mary	2 "	Bakari Jammeh
"	" North	4 "	Karanta Cham
"	" South	4 "	Tumani Ture
"	" East	2 "	Mamadi Sanyan
North Bank	Lower Niumi	10 "	Maranta Sonko
" "	" Baddibu	16 "	Arafang Bulli
" "	Upper Baddibu	4 "	Biram Jameh
" "	Jokadu	10 "	Bulli Forfana
McCarthy Island	Eastern Saloum	2 "	Sowallo Cessi
" "	Lower "	1 " 3 bushels	Suntu Koma
Kotu Gardens special issue		1 "	Mr. Morales
		80 cwt. = 4 tons.	

Figure 6.2: Colonial memo documenting distribution of canary maize seed to 16 District Chiefs in 1909. Note the detailed records of the quantities given to specific recipients (CSO 2/138).

Making Free Gifts

How have disparities of recognition—forged along the lines of colonial categories—influenced the historic imaginaries of past germplasm exchanges? Here I am not talking about cases of state espionage where state records on both sides of the stealing/taking provide some testament to the motives, reasons, or responses of each actor involved. Here I am talking about the vast bulk of exchanges that took place between farmers and early agricultural researchers during the twentieth century—those exchanges that have most often been lumped as evidence of a historic global commons in plant germplasm. As Ribot and Peluso have pointed out "discourse and the ability to shape discursive terms deeply influence entire frameworks of resource access" and access itself is patterned by the "power to produce categories of knowledge" (2003: 169). Can scholars assume, then, that gifts of seed also meant the same things to all parties? That they represented the same types of claims, meanings, and ultimately, relationalities?

In her exploration of the making of a "free" gift, Soumhya Venkatesan (2011) draws on Derrida's three conditions of a free gift to explore a historic "gift" of a carpet from an Indian merchant to the Queen of England. For Derrida, for a gift to be truly free, there first must be no reciprocation of the gift, as such action would imply calculation or interest involved in the act of gifting, dispelling the possibility that such an offering was a true gift. Second, there must be no recognition of the gift by the receiver, as that would create feelings of indebtedness and thus obligation to reciprocate. And thirdly, there must be no recognition of the gift by the giver, as recognition would lead to gratification in the giver, which is itself a sort of reciprocation, albeit internal to the person who gave the gift. While Venkatesan is exploring how a failed gift (one that was never accepted) can, in the myths and stories that are told about it, become a successful free gift, her analysis raises important questions about how a successful gift (one that was

accepted) might be rendered *free* in the stories that are also told about it. In the case of farmer-colonial administrator seed exchange in The Gambia, gifts could be rendered free by not giving credit (nonrecognition) for a gift, especially when the giver does not have the same power to construct official narratives of giving, taking, and expectations of reciprocity.

Venkatesan is interested in exploring how descriptions of exchanges, apart from the exchange itself, have the power to make relations. In thinking through the development of global plant exchanges over the past century, the significance of a gift's *freeness* rests in its ability to dissolve or create the imperative of reciprocal recognition and obligation. A truly free gift would not effect the mutual recognition that makes relations, because, to borrow the words of James Laidlaw (2000), "a free gift makes no friends." Likewise, the reciprocal recognition and obligation that make a gift unfree are significant for how property rights and claims to resources are made effective through exchange. In the model of property advanced by Hegel (2008), for example, it is through alienation of material goods and the subsequent recognition of that exchange by others that humans both create themselves within the social world in meaningful ways and fulfill property relations. This is because for Hegel, property should be conceptualized "not only as material goods to be possessed, but also as symbolic ones to be given away in order to create communities of recognition" (Robbins 2006: 172).

In the ways that the farmer-plant breeder exchanges that I have described were recorded in the archival record, it is impossible to know what sort of local recognition, thanks, reciprocation, whatever, was given to the farmer at the time of the exchange. It is also difficult to know how farmers recognized their gifts of seed to the Department of Agriculture. What is known, however, are the ways that Europeans recognized European gifts to each other, the ways that Europeans recognized their gifts of seed to Gambians, and the ways that Gambians

recognized European gifts. Within the archival record, exchanges between Europeans were recognized formally. While recognition contradicts Derrida's almost impossible criteria for a *free* gift, that was, in many ways, the point. Recognition ensured that germplasm exchanges were gifts—gifts that in a very Maussian sense built administrative relationships and professional alliances. These were gifts that, in their recognition, served as testament to the potential and superiority of European agricultural knowledge and skill; gifts that helped solidify the principle of "free availability" within the British Empire, ensuring future reciprocity of germplasm to other colonial outposts if it was needed; gifts that might necessitate some form of future compensation.

On the other hand, farmers' gifts of germplasm were seemingly rendered free in that they were barely recognized at all. Farmers' gifts thus were not accompanied by the same power to make persons or relations that the reciprocal exchanges of germplasm between colonial officials carried. Exchanges carried out by Gambians and by Europeans thus appeared free in different ways. The freeness of Gambian farmer exchanges rendered them almost invisible; whereas the freeness, openness, and reciprocality of European colonial exchanges laid a foundation for types of reciprocity practiced in international germplasm exchanges during the twentieth century. The former lingered in a space of culturally-induced ignorances, the latter formed the basis of knowledge about established scientific practice.

What have been the effects of how recognition has been selectively parsed out, given individually to Europeans and their institutions, and only marginally, anonymously, or collectively to subaltern farmers? Undoubtedly, part of this selectivity can be explained by the professional demands that lower-level colonial officials were trying to meet in an era marked by increased administrative emphasis placed on the importance of scientific expertise (Hodge 2002; Swindell 2013). The thanks given to the Governor, the Missionary, or the colleague at the

Agricultural Station in Malta were attempts to recognize one's perceived equal or superior, a gesture that might ensure one was promoted, or at least, kept his job. Yet these structures within which colonial bureaucrats were working typify the very kinds of inequalities of power that I want to underscore because they invariably also impacted the ways that African farmers were ranked, recognized, stereotyped, and stripped of agency within the rise of global plant exchanges and scientific plant breeding. What emerged, then, from a very early date, was a tendency to treat the efforts of European plant breeders and administrators specifically, as individuals, as creative agents whose labor deserved recognition, while treating the work of African farmers as an undifferentiated class, whose contributions to plant breeding were undeserving of recognition.

In late twentieth century negotiations over plant germplasm and intellectual property there has been a similar tendency to treat farmers as an undifferentiated class while treating plant breeders and corporate specific legal entities. This legal difference has often been buttressed by depictions of farmers' innovation and exchange practices as collective and free, depictions that have served as convenient foils to formal plant breeding practices and associated intellectual property regimes. Such a positioning has a dual effect: It helps elide diversity in farmer practices, worldviews, and management regimes at the same time that it also ignores the ways that formal plant breeding is and has been collective, cumulative, and dependent upon germplasm exchange (Nazarea 1998).

Likewise, the ability to render certain types of resources "raw" or "unrefined" (as with farmers' landrace varieties) or certain types of exchange "free" or "open" has been a powerful tool for naturalizing unequal relations of power and (re)defining the parameters of property. In particular, claims about a global commons have been used to invalidate the ownership and rights claims of marginalized groups (Chander and Sunder 2004; Roa-Rodríguez and van Dooren

2008). Kloppenburg referred to this very issue when he wrote: "plant genetic resources leave the periphery as the common—and costless—heritage of mankind, and return as a commodity—private property with exchange value" (2004: 169). Similarly, I think this is what activists and scholars alike (Shiva 1997; van Dooren 2008) have been getting at when they point to how the old convention of *terra nullius* is lurking in the legal and political inequalities at play in international negotiations over plant germplasm. Here, misappropriation, or its legitimation, can arise from strategic and blatant disregard of others' claims just as much as it can be a consequence of economic and cultural myopia (Rose 1998).

There is also bigger question here as to how certain renderings of past exchanges have made them more tractable to current imaginaries (Herman 2013; Nazarea 2013) about a historic global commons. In her discussion of Mungo Park's journey up the River Gambia at the end of the 18th century, Mary Louise Pratt (2008) pointed out that the narratives Park presented to his European readership were ultimately stories of reciprocity, ones that foretold the promise of—and helped justify—European commercial expansion into West Africa. What is striking about Park's narrative, Pratt argued, was his ability to present himself as the quintessential entrepreneur, albeit one who traded European commodities within an immensely moral economy. Such historical accounts of reciprocity, she noted, have been important for the stories that capitalism relays about its own mission. "While doing away with reciprocity as the basis for social interaction," she contended, "capitalism retains it as one of the stories it tells itself about itself. The difference between equal and unequal exchange is suppressed" (2008: 82).

Along these lines, attention to past seed transactions is significant for understanding how knowledges and ignorances about indigenous worldviews and resource management practices have been articulated over the course of the 20th century. For in the narratives that circulate about

historic seed governance, the stories people tell about germplasm transfers weave stories of reciprocity, open exchange, and science-for-development. They do so, however, while all the while citing a narrow, very privileged version of reciprocity and universalizing to all the various actors involved in historic exchanges. As such these narratives weave very specific stories, too, about what counts as property and what qualifies as claims making in the long history of germplasm transfers. In the process, certain types of claims may be invalidated while others may disappear from the property radar entirely.

CHAPTER 7

CONCLUSION: EMERGING INTELLECTUAL PROPERTY LAW AND FARMER SEED GOVERNANCE

If we had those laws, we would go under them –Gambian Farmer, while discussing plant patents and plant variety protection laws in the United States

This dissertation has examined the various ways that farmers in Jarra West approach the issue of rights to seeds and crop varieties in light of emerging intellectual property law in The Gambia. Throughout these chapters, I also have sought to trace two related historical threads. The first was to explore how seed management practices have changed over time. The second was to show how contemporary elisions in international negotiations over crop germplasm have deep colonial histories. Together with attention to the diverse and sometimes diffuse ways that farmers assert rights to seed, it is my hope that following these historical threads—the dynamics of local practice and the persistence of colonial encounters—might inform attempts to make the legal harmonization process more equitable.

One of the central arguments of this dissertation is that attempts to understand claims to seeds and crop varieties (and perhaps many other IP subject matters) will require breaking away from established understandings of property in order to explore unconventional property arrangements. Part of this dilemma stems from the fact that seeds, crop varieties, and crop germplasm possess a unique materiality that makes designating them as one type of resource or another tricky. For example, seeds are tangible entities, reproduced over many farming seasons and passed from hand to hand. Varieties, on the other hand, might be described as semi-tangible: they are always reproduced and passed along as seeds but they also possess a population

dynamics that makes them different from individual seeds. Still yet, germplasm might flow between varieties. Across these various scales of materiality, seeds possess different resource attributes that do not always align with the resource attributes of common, private, public, or even club goods (Eyzaguirre and Dennis 2007; Halewood 2013). Nor do farmers' management practices necessarily align with either emergent models of private property or established commons arrangements.

Rather, in Jarra West, the bringing into being and the maintenance of crop varieties is recognized as both an individuated and collective undertaking. Although bringing out new varieties is often the labor of hard-working individuals, the tasks of organizing, stewarding, and maintaining varieties is seen as most often a collective endeavor. In this milieu of distributed innovation, social recognition of individual effort manifests through naming and storytelling, forms of commemoration that might "make one's name famous," but only through further acts of giving. Yet the seed a farmer harvests at the end of the season is her own, whether or not it is someone else's namesake. This looks a bit like the labor theory of property, and it stems, at least partly, from awareness that agricultural production is by necessity a creative process, one that involves some degree of effort to continuously "organize" varieties from one season to the next. It is because people own their seed that they can fulfill seed claims through acts of giving, exchanging, and even selling. Yet in the simultaneous broad inclusivity and conditional relationality of seed transactions, something that looks like a commons also begins to emerge. It is in this sense that rights to seeds in Jarra West, framed as rights to give, often fit awkwardly into both models of individual and common property.

Where possible, I have attempted to show how institutions mediating farmer seed management practices have changed over time. The widespread adoption of Islam and the rise of

gendered production practices during the nineteenth and twentieth centuries have come to influence who exchanges seed, how it is exchanged, and the meanings that different members of society attribute to various seed transactions. Women, who are the primary cultivators of rice, take part in seed exchange far more than men. They also transact seed in ways very different than men. That men and women attribute differential meaning to gifts, exchanges, loans, and sales points to the complex ways in which religious and social practices have been influenced by and speak back to emerging economic opportunities and market logics.

Recognition that many of the local institutions mediating exchange of germplasm and hence "rights to" have always been in transition is important for a number of reasons. In general, awareness of how seed management institutions have been patterned by the interplay of changing ideological practice and new economic opportunities brings attention to how new markets and new policies might come to bear on farmers' practices. Likewise, in debates over emerging intellectual property law, there has often been swift recourse to homogenous categories of "indigenous" or "farmer." In these cases, farmers' and indigenous peoples' practices are often presented as age-old, timeless, and based in tradition (Anderson 2009). These depictions can pose serious consequences for peoples' representation under the law, in their struggles against it, and in their attempts to work within it because of the standards of authenticity and subjective difference that such categories force farmers and indigenous peoples to navigate (Povinelli 2002).

Lastly, I have explored how the politics of early bioprospecting and colonial plant exchanges have produced very specific types of knowledges and ignorances about historic germplasm transfers, the actors involved, and the subjective meanings that different actors brought to acts of exchange. I followed uneventful seed exchanges and the colonial stories told

about them in order to trace how the interplay of recognition and disavowal of agency in seed transfers has favored certain readings of past seed transactions over others. From a very early date in international germplasm transfers, Europeans and scientific experts were granted a type of agency and recognition that was not extended to farmers. Although many of these early transfers relied on farmers' knowledge, skill, and contributions to locate and trial new cultivars, credit was most often reserved for European administrators and agricultural experts. Farmers and Europeans alike supplied cultivars to collections and exchanges, but where the latter possessed the discursive power to shape formal transactions and expectations of use, the former's approach to seed management was largely cut out. This textual displacement worked to naturalize models of free availability that favored immensely European models of reciprocity. At the same time, this history raises questions as to how new encounters and new debates over the politics of plant germplasm not only draw upon and reproduce categories like "farmer," "expert," "consumer," or "innovator," but also privilege very specific interpretations of what counts as property, claims, and rights.

The Push Toward Legal Harmonization

As a member of the World Trade Organization, The Gambia is expected to meet the minimum standards for intellectual property protection for plant varieties as outlined in the Trade Related Intellectual Property Rights (TRIPS) agreement. Yet, the harmonization of intellectual property rights under international law raises a number of ethical issues about translation, appropriation, dispossession, and the recognition of diverse claims under the law (Lewontin 1998; Kloppenburg 2004; Aistara 2012; Coombe and Turcotte 2012). Failure to recognize unconventional conceptions of ownership skews the types of claims that are given attention in discussions over

property in the first place. Historically, such myopia has facilitated the misappropriation of others' resources and, at worst, has perpetuated violence (Rose 1998). Emerging intellectual property regimes not only privilege certain types of property claims over others but they also reorganize how farmers save, exchange, and experiment with seed of protected crop varieties. In most models of intellectual property that have been applied to crop varieties, the creative work that a farmer does throughout the agricultural season is subordinated to the claims of the "creator" or "inventor" of a protected variety. Thus stranded on the wrong side of the inventive binary, farmers might have little say over how they manage the products of their labors. There is thus growing concern as to how many states will approach the issue of harmonization and how diverse visions of personhood, innovation, property, and rights will be represented in the process (Oguamanam 2006; Aistara 2012).

Current Developments toward Legal Harmonization in The Gambia

Within the WTO, member states were given various "transition" periods to bring their domestic intellectual property legislation into compliance with the TRIPS agreement. The duration of these grace periods was based on the United Nations designation of each member state as either "developed," "developing," or "least developed." The Gambia and other "least developed country" members of the WTO were given the longest initial transition period of eleven years. This has since been extended twice, first to July 1, 2013 and second to July 1, 2021 (WTO Press Release 2005, 2013).

Despite the most recent extensions, the Gambian government has initiated the harmonization process, with the help of officials from both World Intellectual Property Organization (WIPO) and the African Regional Intellectual Property Organization (ARIPO). In

January of 2012, government officials, legal practitioners, and representatives of WIPO and ARIPO, met in The Gambia to discuss the future of intellectual property right protection in the small West African country. Commenting on the importance of intellectual property for the future of the country's development, Edward Gomez, the Attorney General and Minister of Justice of The Gambia said, "in this day and age, the progress of a society is no longer solely dependent on the favours of nature such as the amount of gold, silver or crude oil found within a state's territorial jurisdiction" but rather "the development of societies and states are increasingly driven by the knowledge and skills of its people, and the ability to invent and generate new technologies" (Marenah 2012a).

Three months later, at another meeting between Gambian government officials, WIPO and ARIPO representatives, local artists and members The Gambia's legal community, the Director-General of ARIPO, Mr. G.H. Sibanda, reiterated the goal of the intellectual property forum. He said, "It will be an opportunity to understand the country's vision and priorities, to sensitize stakeholders on how best to leverage intellectual property for economic development" (Marenah 2012b). Despite excitement about the promise that intellectual property holds for the future of The Gambia, the relationship between intellectual property protection, innovation, and economic growth remains uncertain. For many years, one of the dominant narratives in intellectual property research was that stronger private protection encouraged innovative activity and was thus central to economic development (de Beer et al. 2014)—a narrative that in many ways succinctly captured what Arturo Escobar referred to as "the postmodern form of ecological capital" (1995: 203). And while a more complex narrative about innovative activity has begun to emerge in recent research, there "is evidence…to suggest that African policy-makers continue to be offered relatively stale, globalist, protection- and harmonisation-centric IP narratives" that fail

to account for local variation or intricacies in intellectual property law itself (de Beer et al. 2014: 6-7).

A number of questions thus remain as to what path the Gambian government might choose to take in its move towards legal harmonization. Along with the new steps towards intellectual property compliance, there are ongoing efforts in The Gambia and other parts of the Economic Community of West African States (ECOWAS) to streamline seed certification practices in order to promote the development of a formal seed sector and a regional market in certified seeds. How the drive to build the formal seed sector will influence TRIPS compliance is unclear. What is certain is that the presence of large multinational seed companies is growing across Africa, particularly with the recent emphasis put on public-private partnerships in the New Green Revolution in Africa (Bezner Kerr 2012).

Questions thus remain as to how the push towards legal harmonization in The Gambia will or will not bring with it regimes of ownership and governmentality that are often at odds with Gambian ways of thinking about varietal innovation, signification, exchange, and ownership. The exclusivity of rights conferred via intellectual property and the model of innovation upon which those rights are based advance a theory of personhood, labor, value that diverge from the ways that Gambian farmers discussed “humans being humans,” the interplay of collective and individuated human and non-human labor, and the benefits that accrue to those farmers who work hard to “bring out” new varieties. It is thus worth taking a brief look at some of the legal requirements that the government of The Gambia is facing in the push towards legal harmonization and some of the legal mechanisms that exist to meet those requirements.

The minimum standards for intellectual property protection that all WTO states must meet are outlined in TRIPS Article 27.3b. The article states "Members may exclude from patentability":

> plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof.

Although all member states are required to provide some form of protection for plant varieties, compliance with TRIPS can take several forms. States might choose to invoke some form of utility patents, plant patents, plant variety protection, or *sui generis* alternative to meet these requirements. For many WTO member states to date, however, utility patents and plant variety protection have formed the major basis for intellectual property protection for plant varieties. Furthermore, the interpretation of *sui generis* within harmonization efforts has increasingly taken the form of plant variety protection as outlined by 1991 version of the International Convention for the Protection of New Varieties of Plants (UPOV) (Roa-Rodríguez and van Dooren 2008). All of these forms of intellectual property establish proprietary rights to for the "creators" of new crop varieties, and increasingly, have begun to limit the number of allowable "exemptions" to the exclusive rights conferred by intellectual property. In short, although states have begun to invoke the *sui generis* option more frequently when drafting their national laws (WIPO 2003), there has been a general trend towards the creation of more restrictive rights, even when imagined under the rubric of patent alternatives (Roa-Rodríguez and van Dooren 2008).

Patents and Plant Variety Protection

To date, utility patents and plant variety protection have been the most commonly invoked forms of intellectual property protection for crop varieties (Dutfield 2000), although the possibility of *sui generis* alternatives has prompted the development of a number of alternative IP models (Kesan 2007). Under the TRIPS agreement, patents are to be made available to "inventions" that are novel, involve an "inventive step," and are "capable of industrial application" (TRIPS, Article 27.1). By definition, utility patents and plant patents alike prohibit farmers from saving, propagating, exchanging, and experimenting with protected varieties.

One of the most commonly invoked *sui generis* alternatives to patent rights is plant variety protection (PVP), although in recent years certain models of PVP have continued to grow increasingly proprietary. UPOV is the premier international agreement that has established standards for plant variety protection. For many decades UPOV included a mandatory exemption that ensured farmers could save and exchange seed of protected varieties. It also provided a breeders' exemption, which ensured that plant breeders could use protected cultivars in the development of new varieties. In 1991, UPOV member states reworked the previous 1978 convention to make the farmers' exemption merely optional. Also, in an attempt to avoid topical "cosmetic breeding" of "essentially derived" varieties that do not significantly differ from the parent material, the updated UPOV 1991 also significantly limited the plant breeders' exemption that allowed breeders to use germplasm of protected varieties for the development of new cultivars (Salazar et al. 2007). The effect has been that UPOV, in is 1991 version, has become increasingly proprietary in the scope and nature of the rights it can confer to breeders of novel, distinct, uniform, and stable plant varieties (Dutfield 2000; UPOV, Article 5.1).

Toward Sui Generis Alternatives

Recognizing the problems posed by the extension of patents and PVP to crop varieties, a number of states have sought to draft legislation that establishes other types of *sui generis* options than those offered by conventional models of plant variety protection. In many cases, the creation of *sui generis* legislation has served merely as a compliment to existing state intellectual property law, rather than as a complete replacement to patent or plant variety protection. Nonetheless, some *sui generis* laws have attempted to bring the mandates of the WTO and the Convention on Biological Diversity (CBD) together by creating legislation that establishes systems of prior informed consent, access, and benefit sharing for the collection of biological resources (Dutfield 2000).

In 2000, the African Union, then the Organization of African Unity, created a draft Model Law that was meant to guide African governments as they created domestic legislation to address issues of intellectual property compliance and the control of biological resources. As a potential *sui generis* alternative, the Model Law is interesting in a number of ways. First, the terms that it establishes for intellectual property protection meet only the bare minimum for Article 27.3b of the TRIPS agreement, meaning that the model law expunges as much of the proprietary scope of Article 27.3b as possible while meeting the minimum standards for compliance. For example, the model law prohibits patents over all life forms and biological processes within state jurisdictions (Article 9.1). It also prohibits the application of patents to any biological materials collected within jurisdictions but then carried elsewhere (Article 9.2). Instead, the model law sets forth a system of plant variety protection—albeit one very different from UPOV 1991—to meet the minimum requirements of TRIPS 27.3b.

In several places, the Model Law reiterates farmers' rights to use, save, exchange, and sell their crop varieties (Article 16, Article 21, Article 26). The law also proposes that states create a "Law on Farmers' Varieties" under which farmers could apply for variety certificates for their "own" cultivars, including varieties that do not meet other IP-standards of distinction, uniformity, and stability—as many farmers' varieties rarely do (Articles 24-25). The form of plant variety protection set forth by the Model Law would allow for the protection of varieties that are "distinguishable," "stable," and that are either "sufficiently homogenous" or constitute a "well-defined multiline" (Article 29). Under this model of plant variety protection, breeders would retain the exclusive right to sell and the exclusive right to produce (or license others to produce) protected propagating material for sale (Article 30). That said, farmers and others would retain rights to propagate, grow, use, sell for food, and experiment with protected varieties, and farmers would be ensured the right to save, exchange, and use protected seed (Article 31). Under the Model Law, farmers would not be allowed, however, to sell protected varieties within the commercial seed industry (Article 26.3). Through the creation of overlapping rights to protected cultivars, the Model Law could potentially foster a plural legal system that recognizes different types of claims to crop germplasm.

That said, questions remain as to how diverse, heterogeneous, and shifting local practice might be read within the Model Law, however innovative it is in accommodating the goals of various actors. In laying out the sample "Law on Farmers' Varieties" and the "Law on Community Rights," for example, the Model Law often references rights "as they are enshrined and protected under the norms, practices, and customary law found in, and recognized by, the concerned local and indigenous communities, whether such law is written or not" (Article 17). While this phrasing leaves potential space for the recognition of local practice and diverse

claims, how terms such as “community,” “customary law,” and “customary practice,” among others, would come to be interpreted under the law and across jurisdictions remains immensely unclear. Ultimately, it is likely that the interpretation of such terms would be hammered out, translated, and transformed within the technicalities of the law (such as state legislation, varietal applications, and benefit sharing contracts) and in cases of conflict between claimants (Anderson 2009; Foster 2012). Yet what these terms would come to mean is an immensely political question, one that will inevitably have to grapple with the colonial legacy of customary law, the networked flow of crop varieties across different “communities,” and gendered patterns of resource use, maintenance, and control, among other issues.

At the same time, the Model Law remains ambivalent as to who within a community might claim a farmers’ variety, for example, and how such a claim might be recognized in cases where multiple types of agency in the creation and long-term maintenance of crop diversity are recognized. This ambivalence may be both a problem and a possibility within the law, however. Because law and culture are intertwined and co-productive, law is always implicated in how different legal subjectivities are understood and recognized. While this can be problematic, Jane Anderson has noted that the productivity of the law “means that legal frameworks can also be adapted for purposeful strategies of recognition” (2009: 43). Likewise, it is unclear how a state that adopts the Model Law might navigate between the more exclusive models of rights and property defined via plant variety protection and potentially more inclusive ones like those described by farmers in Jarra West, particularly in cases where there might be direct conflict between the ways that seed is appropriated under one model and the ways that claims are advanced under the other.

Along these lines, recent research on intellectual property, collaborative innovation, and the concept of "open development" might provide insight into potential legal options (de Beer et al. 2014). Much of this work has looked towards models of the limited commons to address cases where knowledge and other goods might be managed collectively vis-à-vis members of a group but exclusively with regard to outsiders (Ostrom and Hess 2007; de Beer et al. 2014; Ouma 2014). In general, recent years have witnessed a proliferation of recommendations as to what types of protection might be best suited to the creative practices of farmers and indigenous peoples, ranging from "rights to distinguish" creative or innovative works (Drahos 2011) to various forms of recognition and protection for use of farmers' varieties (Salazar et al. 2007). With regard to seeds and crop germplasm, there has been increased emphasis on the possibility of models that mimic other creative IP models, such as those used in open source software. For example, the Open Source Seed Initiative (OSSI) in the United States has sought to build a protected commons through which people could use and share germplasm that would be protected from appropriation via open source licenses (Kloppenburg 2010, 2014). This project has not proceeded without challenges, however; among them, the legalistic contractual nature of the open source license has proven unacceptable to potential participant groups from the Global South, particularly La Via Campesina and Navdanya, that saw the contracts and the royalty-bearing licenses used by OSSI as merely other forms of ownership and privatization built of the same legal and economic reasoning as intellectual property (Kloppenburg 2014).

The bigger aim of OSSI and other open source movements is not to reproduce spaces of commodification within the movement for seed sovereignty, however, but rather to create the "prospect of a shift from continuous defensive actions to the creation of a positive, relatively autonomous space in which capital might be effectively prohibited—by its own rules—from

trespassing" (Kloppenburg 2014: 19). This is a worthwhile endeavor, if only, as Kloppenburg has noted, "to generate options to be tried." At the same time, the warning against starting with a position that is itself a product of the very legal rationalities that have facilitated intellectual property-based enclosures is a good one. In this regard, further research on the history of intellectual property based enclosures and on other state incursions into farmer seed management practices could not be more important—if only to provide insight into how Western models of propertization have been justified, hammered out, and extended to diverse locales, and how, in those places, farmers might have resisted, skirted, and worked around the expansion of capital in all its various forms. Similarly, the willful creation of any common space will require attention to how various members approach and come to understand issues of exchange, rights, and benefits, among others.

In the coming decade many WTO member states, The Gambia among them, will be faced with the challenge of how to go about meeting the minimum standards of TRIPS 27.3b while hopefully providing some options for recognizing and protecting claims to seed that do not fit established models of property and ownership. Barring exit from the WTO or serious changes to legal harmonization mandates over the next seven years, The Gambian government should seriously consider legislation that meets the bare minimum of what the WTO requires for the protection of plant varieties, like the model of plant variety protection outlined in the African Union Model Law. With the recognition of any form of plant variety protection, it is important to provide legal recognition of farmers' rights to save, exchange, and experiment with seed of all kinds. Additionally, the creation of some form of recognition and protection for farmers' varieties is worth considering. What exactly this will look like, however, will also depend upon

the avenues that farmers have to represent themselves to and within the law at all steps in the process of legal negotiation.

Avenues for Future Research

As The Gambia works toward intellectual property harmonization, it will be important to follow how local practices, customs, and beliefs are translated both to and within the law (Anderson 2009). As the work of de Beer et al. (2014) suggests, whether or not attention will be given to other ways of approaching the question of property in crop germplasm will to some degree depend on the extent to which the government of The Gambia will adopt strategies for harmonization that privilege conventional narratives about IP protection and harmonization. There are a number of questions, for example, about how the law will come to frame and treat "innovation" and how it will, in turn, interpret local conceptions of "bringing varieties into being." At the same time, it will be equally important to explore how categories of the law are understood by various actors in light of local conceptions of property and how these new laws will come to be interpreted within the legal consciousness (Ewick and Silbey 1992) of farmers, seed vendors, agricultural extension agents, policy makers and lawyers alike.

Along these lines, there is a need to better understand how information about intellectual property harmonization and debates over harmonization do and do not circulate among different social actors. For example, in 2007, members of farmers' organizations across West Africa, together with representatives from Asia, South America, Europe and other parts of Africa, met in Bamako, Mali to discuss emerging intellectual property law, food sovereignty, and the rights of farmers and pastoralists. The result of that conference was the Bamako Declaration, which called

on regional governments to "do everything in their means to halt…privatization" through intellectual property and to instead support local food self-sufficiency. Although the declaration was signed by a representative of the national farmers' organization in The Gambia, it garnered almost no attention within government, organizational, and other institutional circles within the country.

There is also a need for further research on the creation of colonial seednut storage laws during the early twentieth century. Research thus far raises a number of questions about how the rise of seednut storage laws in The Gambia parallels and predates late twentieth century enclosures of crop germplasm. The seednut storage laws were supposedly based on local practices of seed management, but they ultimately came to mandate how farmers should save their own seed. Because the law also applied to the ability of native farmers' to distribute seed to incoming strange farmers, it shifted control over local seed transactions into the hands of village and colonial administrators. Under the new laws, farmers were to reserve, from their own stock, four bushels of seed in their local village stores. The following season, farmers could remove these bushels to plant their fields. To ensure sufficient planting material was available for incoming strange farmers, however, these laws also mandated that farmers deposit one extra bushel in the stores (CSO 2/1471). Any issue of additional bushels (beyond the four put in) was to be repaid two-for-one back into the seed store. Any unclaimed bushels after planting in the next season were sold and deposited into the colonial Farmers' Fund (CSO 2/1471) that put money towards local development projects.

Six years after the start of the scheme, where farmers had been depositing their own groundnuts into village stores, one of the Travelling Commissioners complained of farmers' lack of compliance with these laws. He wrote:

> A careful watch is being kept by the Native Authorities to guard against an abuse which was observed last year whereby after the distribution of seed farmers sell their allotments to traders or barter them for imported rice: such a procedure is, of course, extremely undesirable and *would appear to be criminal conversion since seednuts from the village stores are "entrusted" to the prospective farmer to "apply to the purpose" of raising a further crop* (CSO 2/1579, emphasis mine).

In a turn strangely foreboding of Lewontin's (1998) discussion of the proletarianization of farmers via intellectual property law, Gambians selling the very seedstock that they had deposited in the local stores the year before was being depicted as "criminal conversion." What began with state attempts to read and enforce local practice on the state's terms ultimately helped justify the prosecution of farmers for carrying on with their own seed practices. Coupled with the nonrecognition of subaltern farmers in colonial germplasm exchanges, the rise of seednut storage laws raises questions as to how the elision of agency in dominant narratives about plant exchanges has helped justify the assertion of certain actors' claims over others and has helped privilege certain models of ownership under the law.

Finally, the findings of the seed network analysis in this study point toward the possible application of network data to assessing both seed security and the reliability of seed security measures. The network data I collected during research suggests that values associated with self-sufficiency and being a net provider of seed can lead to a reporting bias in interviews about seed acquisition. When trying to assess seed insecurity and how people get access to planting material, network data may prove to be a useful tool by drawing attention to instances where farmers underreport the degree to which they rely upon help from others in attaining germplasm for planting. Still more research is needed, however, as to how such methods might be combined with others that are currently being used to assess seed security.

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Appendix 1: Details of the random household sample and subsequent network sample

Round	Interview Type(s)	Sample Type	Selection	Sample N Size	Reduced Ego Number	Representing Percent of Named Alters	Alter Number	Representing N People
Round 1	Life Histories	Random Selection of 15% of Village Compounds	1 man and 1 woman from each selected compound	27	27	N/A	N/A	N/A
Round 2	Seed Network & Field Visits	Current Farmers from R1	24 of 27 people in Round 1	24	24	N/A	86	73
Round 3	Seed Network	Random Selection of R2 Network Alters	40% of each R2 Ego's Alters	31	26	47.70%	157	118
Round 4	Seed Network	Random Selection of R3 Network Alters	30% of each R3 Ego's Alters	44	25	46.50%	161	107
Total Network					75		404	211

Appendix 2: Breakdown of compounds in Jenoi by ethnicity (N=104)

Recognized Identity	**Number of Compounds**	**Percentage of Compounds**
Mandinka	82	79
Fula	11	10
Jola	5	5
Bambara	2	2
Layiboo	1	1
Manjago	1	1
Sarahule	1	1
Wolof	1	1
Total	104	100

Appendix 3: Population change for major villages in Jarra West during the twentieth century

Village Name	1902 Village List	1930 Village List	1946 Assess.	1954 Assess.	1973 Census*	1993 Directory of Settlements	Population Growth 1946-1973 (percentage)	Population Growth 1973-1993 (percentage)
Digante			181	330	321	580	77	81
Fonkoy-kunda		49	33	19	101	162	206	60
Jabisa		121	91	156	181	228	99	26
Jabisa Fulakunda		36						
Jenoi	**48**	**62**	**149**	**178**	**655**	**1038**	**340**	**58**
Jenoi Agricultural Station						**134**		
Jifin	158	102	260	347	520	603	100	16
Kanikunda	205	397	721	785	964	1139	34	18
Karantaba	216	270	520	604	706	1135	36	61
Karantaba kuta			66	30				
Loli	12							
Mansakonko				73	320	240		-25
Misira			309	218	286	543	-7	90
Pakalinding	65	61	327	401	1080	1978	230	83
Sankuya	196	341	723	728	1223	1515	69	24
Santanto		10						
Seno Bajonki		98	165	129	106	363	-36	242
Sinchu Bani		16						
Sikunda	234	222	361	443	632	1112	75	76
Soma	214	279	400	491	1267	7988	217	530
Sumbundu	111	22	18	20		187		
Tankong Bajonki		24						
Tonyataba	326	280	691	755	1272	1452	84	14
Welingara			18					
Yalal			56	71				
Others					322	276		-14
Totals	1785	2391	5089	5778	9956	20673	96	108

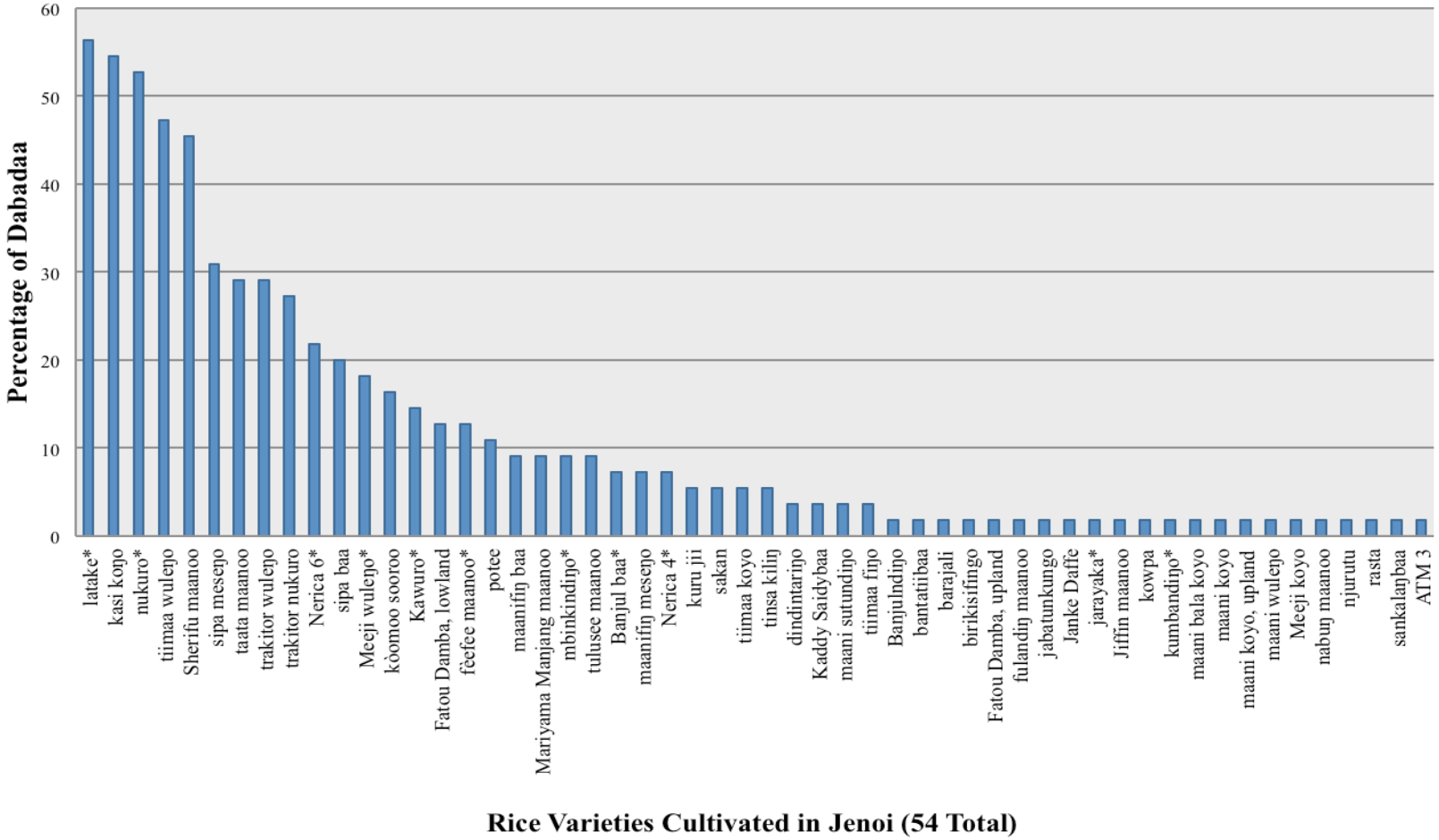
* villages under 100 not listed separately

Sources: David Gamble (1996), Directory of Settlements (1993)

Appendix 4: Seed transactions by crop species for entire network.
Includes farmers in Jenoi, Karantaba, Pakalinding, Soma, and Sankwia (N=75).

	Number of Farmers Cultivating	Number of Farmers Exchanging	Number of Varieties Grown	Total Number of Transactions	Number of Transactions per farmer
Rice	66	64	55	399	6.2 (+/- 3.5)
Groundnut	15	11	5	19	1.7 (+/- 1.3)
Millet	5	2	3	4	2 (+/- 1.4)

Appendix 5: Percentages of surveyed work groups (*dabadaa*) in Jenoi cultivating different rice varieties.
N (*dabadaa*)=55. An asterisk denotes a rice variety that was planted across different rice ecologies.



Appendix 6: Average land area under cultivation. Measurements only for land worked by surveyed farmers in Jenoi.*

Sample N=25	No. work. rice	Avg. area under rice cult. (ha)	Total area under rice cult. (ha)	Total area under cult. (ha) leyo kono	Total area under cult. (ha) mankoto	Total area under cult. (ha) bantafaroo	No. work. GN	Avg. area under GN cult. (ha)	Total area under GN cult. (ha)	No. work. millet	Avg. area under millet cult. (ha)	Total area under millet cult. (ha)	Total avg. area under cult.
women	15	0.95 (+/- 0.58)	14.3	8.4	4.72	1.2	0	0	0	0	0	0	0.95 (+/- 0.58)
men	4	1.63 (+/- 0.64)	4.06	0.5	0	3.6	9	0.68 (+/- 0.56)	6.14	2	0.46 (+/- 0.6)	0.91	1.11 (+/-1.16)

* All measurements were taken by calculating the average number of paces per ten meters for my research assistant and myself. The boundaries of farmer's rice, groundnut (GN), and millet fields were mapped and walked, and the average of my own and my research assistant's measurements were taken as the estimated distance for each boundary. The average measurements for each boundary were then used to calculate the area of each field.

Appendix 7: Agronomic and cultural characteristics of widely-cultivated rice varieties.

Varieties Cultivated in Jenoi	Varietal Synonyms	Ecology & Seasonality	Kernel Characteristics	Agronomic Characteristics	Cooking Characteristics
ATM 3		upland/rainfed (tinti kaŋ, bantafaroo)	white hull		
Banjul Baa		lowland/rainfed-mangrove (leyo kono, mankoto)	fawn hull		
Banjulndiŋo		upland/rainfed (bantafaroo)	fawn hull		
bantatiibaa		upland/rainfed (bantafaroo)	possesses awn; white hull	ripens 1 week after Nerica; bird resistant	
barajali		upland/rainfed (bantafaroo)			
dindintariŋo	Casamance	upland/rainfed (bantafaroo)	fawn hull		
Fatou Damba		upland/rainfed (bantafaroo)			
Fatou Damba		lowland/rainfed (leyo kono)			
fèefee maanoo		lowland/rainfed-mangrove (leyo kono, mankoto)	gold-brown hull	sensitive to salt	
fulandiŋ maanoo		upland/rainfed (bantafaroo)			
Meeji wuleŋo	Hawa Njie maanoo	upland/rainfed, lowland/rainfed (bantafaroo, leyo kono)	golden-rust hull	drought resistant	
jabatunkuŋo		upland/rainfed (bantafaroo)		bird resistant	
jarayaka		lowland/rainfed-mangrove (leyo kono, mankoto)	large grain		
kòomoo sooroo		upland/rainfed (bantafaroo)			
kasi koŋo		lowland/rainfed (leyo kono)	white-pink hull		
Kawuro		lowland/rainfed-mangrove (leyo kono, mankoto)	rust-gold hull	tendency to lodge	
Kumbandiŋo	Kumbandiŋ fiŋo	lowland/rainfed-mangrove (leyo kono, mankoto)	grey-black hull	does not yield much but yields more than tulusee	
kuru jii		upland/rainfed (bantafaroo)	rust-red hull		

Varieties Cultivated in Jenoi	Varietal Synonyms	Ecology & Seasonality	Kernel Characteristics	Agronomic Characteristics	Cooking Characteristics
latake	tooleewo	lowland/rainfed-mangrove (leyo kono, mankoto)	grey-black hull	prone to lodge, easy to harvest, "old earth rice"	
maanifiŋ baa		lowland/rainfed (leyo kono)	grey-black hull		
maanifiŋ meseŋo		lowland/rainfed (leyo kono)	grey-black hull	salt tolerant, drought resistant	
maani koyo		upland/rainfed (bantafaroo)	white hull		
maanisutundiŋo		upland/rainfed (bantafaroo)	white hull		delicious
maani wuleŋo		upland/rainfed (bantafaroo)	fawn hull		
Mariyama Manjang maanoo		lowland/rainfed (leyo kono)	fawn hull		
mbinkindiŋo	mbibiyo	lowland/rainfed-mangrove (leyo kono, mankoto)	grey-black hull	"old earth rice"	difficult to pound, makes delicious naadaa duuraŋo
Meeji koyo		upland/rainfed (bantafaroo)	white hull		
nabuŋ maanoo		upland/rainfed (bantafaroo)			delicious
Nerica 4		upland/rainfed (tinti kaŋ, bantafaroo)	fawn hull		difficult to pound
Nerica 6		upland/rainfed (tinti kaŋ, bantafaroo)	white hull		makes delicious porridge
njurutu		mangrove (mankoto)			
nukuro (syn. kungsutungo)	kuŋsutuŋo	lowland/rainfed-mangrove (leyo kono, mankoto)	short grain, cream hull	"old earth rice," high yielding	can be difficult to pound, makes good *benakinoo*
potee	boday	upland/rainfed (bantafaroo)	cream hull		

Varieties Cultivated in Jenoi	Varietal Synonyms	Ecology & Seasonality	Kernel Characteristics	Agronomic Characteristics	Cooking Characteristics
sipa meseŋo	sipa koyo	mangrove (mankoto)	cream hull, awn	high yielding, bird resistant, prone to lodge	easy to pound, makes good *benakinoo*
sipa baa	sakan	mangrove (mankoto)	long grain, white/cream hull, awn short	bird resistant, prone to lodge	makes good *naadaa duuraŋo*
Sherifu maanoo	Sherifundiŋo	lowland/rainfed (leyo kono)	yellow-gold hull	drought resistant	
taata maanoo		lowland/rainfed (leyo kono)	white hull, dark apex		
tiimaa fiŋo		mangrove (mankoto)	grey-black hull, possesses awn	bird resistant	
tiimaa koyo		lowland/rainfed (leyo kono)	white hull, possesses awn		
tiimaa wuleŋo		mangrove (mankoto)	dark fawn hull, possesses awn	high yielding, bird resistant, "even monkeys won't destroy it"	easy to pound, makes nice *naadaa duuraŋo*
tinsa kiliŋ	jinsa kiliŋ; asam meero	mangrove (mankoto)	grey-brown hull		
trakitor nukuro		lowland rainfed (leyo kono)	orange-gold hull, short grain		
trakitor wuleŋo		lowland/rainfed (leyo kono)	orange-gold hull, occasional awn	high yielding, bird resistant, prone to lodge	easy to pound, makes nice *naadaa duuraŋo*
tulusee maanoo		lowland/rainfed (leyo kono)	rust-red hull	not very productive, beautiful, grain is long, never has a thick tiller	delicious

Appendix 8: Varietal composition of rice fields. Survey done across 83 different plots in Jenoi.

	Single Variety	**Two Varieties**	**Three (+) Varieties**
No. Bantafaroo	3	6	4
No. Leyo Kono	17	16	9
No. Manko to	16	6	6
TOTAL	36	28	19
Percent	43%	34%	23%

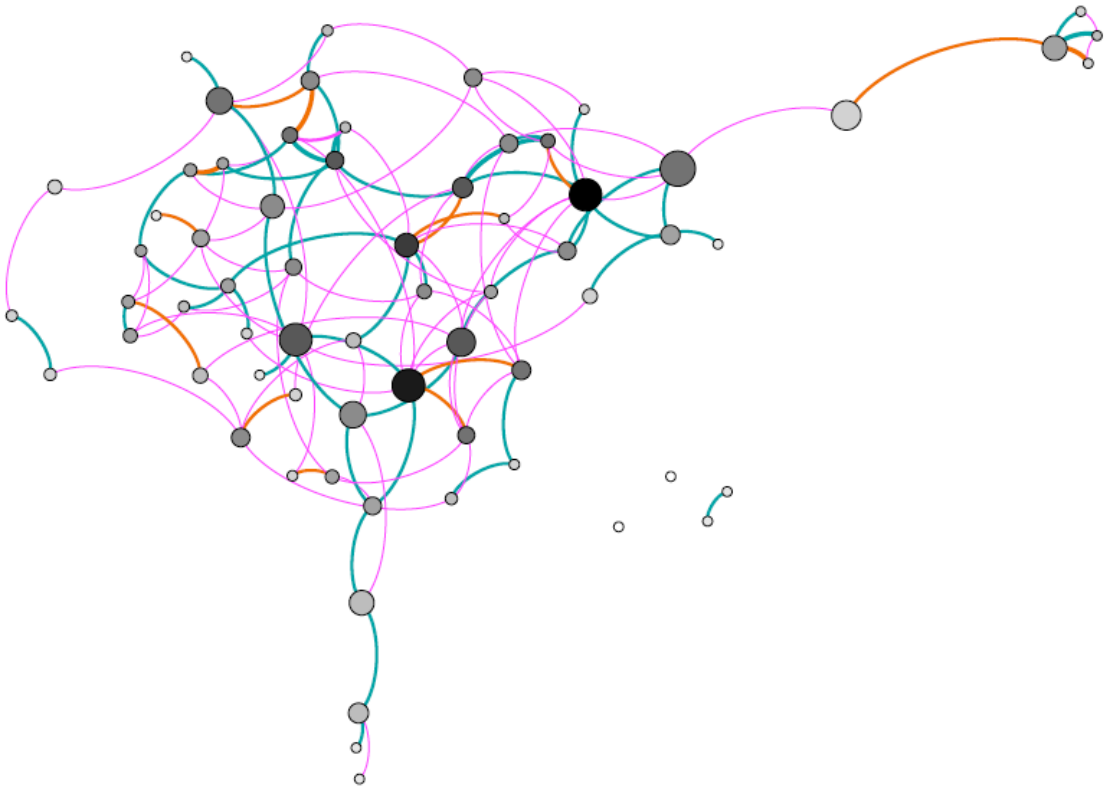
Appendix 9: Rice Varieties, Synonyms, and English Translations

Rice Varieties Cultivated in Jenoi in 2010	Local Synonyms	English Translation
ATM 3		ATM 3
Banjul baa		big Banjul (Gambia's capital)
Banjulndiŋo		little Banjul (Gambia's capital)
bantatiibaa		upland big hair
barajali		
birikisifiŋo		
dindintariŋo	Casamance	fast to child
Fatou Damba		Fatou Damba (woman's name) rice, upland
Fatou Damba		Fatou Damba (woman's name) rice, lowland
fèefee maanoo		gleaned rice
fulandiŋ maanoo		twin rice
jabatunkuŋo		
Janke Daffe		Janke Daffe (woman's name)
Jarayaka		
Jiffin maanoo		Jiffin (place in The Gambia) rice
Kaddy Saidybaa		Kaddy Saidybaa (woman's name)
kasi koŋo		
Kawuro		Kawur (place in The Gambia)
Kiaf maanoo		Kiaf (place in The Gambia) rice
kòomoo sooroo		spear fishing
kowpa		
Kumbandiŋo	Kumbandiŋ fiŋo	Kumba's (woman's name) child
kuruu jii		kola nut juice
latake	toleewoo	fall over
maani bala koyo		white rice
maani koyo		white rice, lowland
maani koyo		white rice, upland
maani sutundiŋo		short rice
maani wuleŋo		red rice, upland
maanifiŋ baa		big black rice
maanifiŋ meseŋo		little black rice
Mariyama Manjang maanoo		Mariyama Manjang (woman's name) rice
mbinkindiŋo	mbibiyo	my little aunt
Meeji koyo		white Major
Meeji wuleŋo	Hawa Njie maanoo	red Major
nabuŋ maanoo		
Nerica 4	Nerica wuleŋo	Nerica 4
Nerica 6	Nerica koyo	Nerica 6
njurutu		
nukuro	kuŋsutuŋo	
potee		a type of sauce for rice porridge
rasta		rastafari
sakan	(different from sipa baa)	
sankalaŋbaa		great person

Rice Varieties Cultivated in Jenoi in 2010	Local Synonyms	English Translation
Sherifu maanoo	Sherifundingo	Sherifo (person's name) rice
sipa baa	sakan	big shrimp
sipa meseŋo	sipa koyo	little shrimp
taata maanoo		"went/has gone" rice
tiimaa fiŋo		black hair
tiimaa koyo		white hair
tiimaa wuleŋo		red hair
tinsa kiliŋ	jinsa kiliŋ, asam meero	one panicle
trakitor nukuro		tractor "nukuro"
trakitor wuleŋo		red tractor
tulusee maanoo		palm oil rice

Appendix 10: Network representation of in-sample rice transactions. Network edges reflect whether or not a transaction was recognized/agreed, recognized/contested, or unrecognized.

There were a total of 399 seed transactions for rice within the entire network, and 190 of these were captured in the network sample. Of these 190 transactions, 88 (44 pairs) were recognized, 28 (14 pairs) were contested, and 74 were unrecognized. The network has two components (those farmers directly or indirectly connected) and two isolates (farmers who neither reported giving/receiving nor were reported to have given/received from other farmers). The darkest nodes, each of which represents one farmer and/or one *dabadaa*, are those with the highest number of reported seed transaction partners (degree). The size of each node represents the degree to which one farmer connects others within the network (betweenness centrality). The color of the "edges" or lines connecting farmers in the network reflects whether the exchange was unrecognized (pink), recognized/contested (orange), or recognized/agreed (green). Some farmers only were party to contested or unrecognized transactions, while the reported transactions of some other farmers were all recognized. Graph created with software Gephi.



Appendix 11: Glossary of Mandinka terms used in text. All spellings follow from David Gamble (1987).

alkaalo or *alikaalo* – village leader

alikaaliyaa – position held by village leader

almaamoo – village imam

almaamoyaa – position held by the village imam

baadiyaa – kinship, relationship; particularly the relationship between children of the same mother

baarakiiyoo – associative work group organized by women, usually to cultivate rice (lit: to send to work)

baaroo – working or plowing

balafaa – sorrow, pity

bankoo – soil, land, country, district

bàntaŋo – silk cotton tree

baraajabaa – great reward from Allah

baraajoo – reward from Allah

baraka – blessedness, worthiness, goodness, diligence

basoo – a type of sorghum

benakinoo – fried rice dish made in one pot (from Wolof: *bena chiin*)

bùuñaabaa – great honor

coki – joint; to join

cokiyaa – enjoinment, connectedness

daboo – hoe used by women to plow the lowland rice swamps

dabandiŋo – small hand-held hoe used to weed peanuts

daadaa – to make, to create

dabadaa (pl. *dabadaalu*) – household work unit

dankutoo – joking relationship between people of specific regions, surnames, or ethnicities

dempeteŋo – snack made from roasted and pounded fresh rice

diboŋo – hand-held hoe used to uproot groundnut plants during harvest

duuraŋo – sauce for rice

duwa – prayers, prayerful wishes

farandaŋo – one handful of rice

faroo – a single rice plot

fiiroo – seeding

findoo – Digitaria exilis

fintindi – to make to come out

hadamadiŋyaa – humanity; being a human being; being a good person

hiina - mercy

huroo – plowing by sine hoe

jalaŋo – idol

jaloo – one of the hereditary group of singers, musicians, historians, and poets

jambandi fayoo – throwing fertilizer or manure

jamba wutoo – pulling rice seedlings for transplanting

jasiroo – broadcasting rice seed

jawiyaa - wickedness

jiyaati (pl. *jiyaatiyolu*) – host, landlord

juloo – rope, to entangle

kàabiiloo – extended patrilineal families, their affines, and their guests

kàfoo (pl. *kàfoolu*) – age set

katadaa seyoo – covering rice seed after it has been broadcast

katiroo – rice harvest done with a small knife

kiilaariyaa – "spreading the work"; a large work group often comprised of all village youth

kintoo – a type of sorghum

kúluu – to train, care for, teach good manners

kuncaamaaroo - season of the year; the early harvest season; roughly September through early November

kúndaa – suffix indicating a town, place, or family

kuyifi baaroo – plowing the rice nurseries

kuyifi bindeewo – weeding the rice nurseries

leyo (also *leewo*) – occasionally flooded open lowland swamp area with bare salty earth

leyo kono – location of shallow occasionally flooded rice paddies; lit: "in the shallow zone of the river basin"

leyosaŋo – planting a small number of rice transplants to start off the transplanting season

lootoo – forked tool used for transplanting rice in the swamps

lúntaŋo – stranger, guest

maanibuloo – bundle of rice consisting of 4 *farandaŋo* (in Jenoi; 3 *farandaŋo* in Niamina)

maani busoo – threshing the rice

maani káaroo – harvesting rice with a sickle

maani katoo – harvesting rice with a small knife

maani suroo – pounding unthreshed rice to remove the stalks

maanoo – rice

maañoobitoo – wedding ceremony; lit: "covering the bride"

mankoto – location of deep water rice paddies; lit: "at the mangroves"

mòo (pl. *mòolu*) - people

mùta – six *maanibuloo*; a unit for counting rice bundles

naadaa – sauce for rice made from dried, pounded baobab leaves

ñaamirila (pl. *ñaamirilalu*) – one who mixes (moniker for jinn)

ñanta – ought, should

ñantabaa – great right

ñantoo – right, should

ñóo – together, one another

puudaroo – chemical or powder (from French: *poudre*)

sàateewo – village or settlement

sàmaa – rainy season

sàmaa-maneela – strange farmer

sanjaanidaanoo – one of either 1) itinerant assistance from women during rice harvest or 2) practice of newly-covered brides collecting *maanibuloo* during the first harvest season after their *maañoobitoo*; lit: "begging for the harvest"

sanjaanoo – season of the year; late harvest season; roughly Novemer through first of February

sanji fóloo (also: *sàmaa fóloo*) – first rains

sañoo – late millet

saririla (pl. *saririlalu*) – one who does seeding (moniker for jinn)

saayi – to be hardworking, active, dedicated

senoo – clearing the land to farm; farming

sinkiroo – household cooking-eating unit; three stones used to make the cooking place

sinsiŋo – ten *mùta*; a unit for counting rice bundles

sitiroo – tying rice bundles

sunoo – early millet

súuwo – compound

tilikandoo – season of the year; roughly February through early June

timiyaa diyaa – pure/sweet heartedness

tinti kaŋ – "on the river bank"

tiya bindeewo – weeding groundnut fields

tiyabusaraŋo – tool used for threshing groundnuts

tiya busoo – threshing groundnuts

tiya feefeeroo – winnowing groundnuts

tiya kafuñoomaa – piling harvested groundnut plants together

tiya karaŋo – gleaning for groundnuts

tiya soo – harvesting groundnuts

tiya tomboŋ – separating groundnuts from leaves and stems

tiyatuŋo – large pile of groundnuts

tiyoo – groundnut

topatoo – to organize, to steward

tomboŋ – to select, to pick up

tutuuroo – to transplant; transplanting rice

waamoo – monthly or bimonthly flooding of rice swamps caused fluctuations in the tide

yiriwandi – to make to develop

Appendix 12: List of Acronyms Used in Text

ARIPO	African Regional Intellectual Property Organization
CBD	Convention on Biological Diversity
FAO	Food and Agriculture Organization
IP	Intellectual Property
ITPGR-FA	International Treaty on Plant Genetic Resources for Food and Agriculture
OSSI	Open Source Seed Initiative
PVP	Plant Variety Protection
TRIPS	Trade Related Intellectual Property Rights Agreement
UPOV	International Convention for the Protection of New Varieties of Plants
WIPO	World Intellectual Property Organization
WTO	World Trade Organization