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Institutional Environments for Enabling Agricultural Technology Innovations:

The role of Land Rights in Ethiopia, Ghana, India and Bangladesh

Manuel Schädler and Franz W. Gatzweiler

Abstract

Land rights are essential assets for improving the livelihoods of the rural poor. This literature based paper shed light to some land rights issues that are crucial for the effectiveness and sustainability of implementing technological innovations in marginalized rural areas of Ethiopia, Ghana, India and Bangladesh. By analysing country specific land right regimes, this paper aims to understand what institutional conditions might constitute barriers to the effective implementation of technological innovations and how they might be overcome. Land rights issues considered in this paper include public and private ownership of land in Ethiopia, customary and statutory law in Ghana, and gender equality and land rights in India and Bangladesh. A better understanding of institutional barriers for the effective implementation of technological innovations is a precondition for complementing technological with enabling institutional innovations and for improving priority setting, targeting and sequencing in the implementation of productivity increasing development measures.

Keywords: Marginality, agriculture, technological innovations, institutions, land rights, tenure security, gender equality, customary law

1 Introduction

For 70 percent of poor people living in rural areas (IFAD 2010), land is the most important source of food and income. Land rights promoting an equitable and efficient use of land therefore constitute a critical component of policies seeking to improve the livelihood of the rural poor and develop strategies to escape poverty. As is increasingly recognized, “land rights” is a multi-dimensional notion. The “bundles of rights” approach, for instance, has distinguished between rights to access and withdrawal, management, exclusion and alienation of land (Schlager & Ostrom 1992). Ownership and use patterns thus are likely to play a decisive role with regard to the impact that agricultural technology innovations have on rural poverty. Indeed, de jure as well as de facto land rights might constitute considerable barriers to technology access and implementation. This literature-based paper therefore emphasizes the importance of the institutional framework, in particular the existing land rights regimes, in which technology innovations might be introduced. It seeks to extract lessons from the analysis of specific land rights aspects for the implementation of technological innovations. The chosen land rights aspects have been found to dominate the literature on land rights issues in each of the countries. Hence, the objectives of this literature review are twofold:

(1) consider different aspects of land rights that might constitute barriers to the effective implementation of technology innovations in agriculture;

(2) derive country-specific lessons as to which land rights aspects might be critical for the effective and sustainable implementation of prospective technology innovations;

The specific land rights issues which have been chosen for this purpose are: public and private ownership of land in Ethiopia, customary and statutory law in Ghana and gender equality and land rights in India and Bangladesh. The selection of these land rights aspects is mainly based on their representation in the literature, rather than derived from the degree of their relevance for the implementation of technology innovations. Depending on the specific type of technology, the characteristics of involved stakeholders, their interdependencies and the nature of the problem which is to be solved by introducing an innovation, a more detailed analysis would be required to establish causal relations between institutions and the productivity enhancing impact of agricultural technologies. Therefore, it is likely that other aspects, which have not been considered here, also play a crucial role for the success of technological innovations in these countries.

In Ethiopia, it has been argued that tenure insecurity caused by public ownership of land might reduce incentives to invest in the land and in technological innovations. In Ghana, the land fragmentation resulting from the mismatch of customary and statutory law might impede a coordinated and inclusive policy process for implementing new technologies. Finally, in India and Bangladesh, legal and socio-cultural norms are considered to hinder women from effectively gaining access to and maintaining control over land. Hence, when designing technological interventions for the marginalized rural poor of those countries, the respective institutional environment needs to be understood and taken into account in order to be able to anticipate and actively counter those institutional barriers.

2 Public and Private Ownership of Land in Ethiopia

The land rights regime in Ethiopia is a controversially debated topic. The fact that all arable land is formally owned by the state has often been contested for being one of the major hindrances in Ethiopia's rural development. However, a more differentiated discussion which has been led in the literature, asks whether other land rights than private ownership can provide for the same security and incentives to invest into land and productivity enhancing technology. Tenure insecurity might indeed constitute a considerable barrier to the implementation of agricultural technology by discouraging investments aimed at increasing earnings in the future. However, the debate about the empirical impact of public ownership of land is still far from being conclusive.

2.1 Land Rights in Past and Present

After the overthrow of the imperial regime in 1975, which had been characterized by a highly complex, but essentially feudal tenure system, the socialist Derg regime declared that land was henceforth publicly owned (Public Ownership of Rural Lands Proclamation No. 31/1975). While any transfer of usufruct rights in terms of sale, mortgage or lease was prohibited, Peasant Associations started redistributing land on the basis of the number of family members. At the same time, the formation of Agricultural Producer Cooperatives was encouraged (Crewett et al. 2008). With the end of the Derg regime in 1991, the debate about land ownership re-emerged. Ultimately, the 1995 constitution emphasized continuity by stating in its Article 40(3) that

> "[t]he right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange."

In fact, the only innovations of the new constitution regarding land rights were the abolition of the previously effective size limit of land holdings of 10 hectares, as well as the end of the prohibition to hire labour and to lease land (Crewett et al. 2008). Furthermore, the mortgage of land, which had been illegal under the Derg regime, was not explicitly mentioned in the constitution.

Article 40(4) moreover determined that "Ethiopian peasants have right to obtain land without payment and the protection against eviction from their possession […]." These usufruct rights, while being granted by the state such that they can be revoked at any time in the case of a new redistribution, have no time limit and are inheritable. Finally, Section 8 of Article 40 provides for the payment of compensation in case of expropriation of land "commensurate to the value of the property." In accordance with Article 52 of the Constitution defining the demarcation of competences between the federal and regional governments, the Federal Rural Land Administration Proclamation No. 89/1997 specified that the administration of land, including its redistribution, is vested in the regional governments. As a result, quite significant differences, for instance with regard to limits on the duration or size of land rented out, can be found across regions. For example, while in some regions only 50% of the land cultivated is permitted to be rented out (Tigray, Oromia, Benishangul Gumz), other regions do not specify any particular amount (Amhara, SNNPRS) (Ambaye 2012). Finally, the Federal Democratic Republic of Ethiopia Rural Land Administration and Land Use Proclamation No. 456/2005 promoted the registration and certification of usufruct rights. Since then, a considerable campaign of certification comprising over 20 million parcels of rural land and approximately 6 million households has taken place (Deininger et al. 2009).

2.2 An Ongoing Debate

The debate about the effects of public ownership of land on agricultural development is ongoing. While the government emphasizes equity and justice, in particular in opposition to the feudal land tenure system

before 1975, economists within the Ethiopian Economic Association (EEA) amongst others have focused on inefficiencies associated with fragmentation of land, tenure insecurity, and the absence of a free market.

Essentially, the government argues that everybody should have equal access to land, since it constitutes the basis of livelihood of 85% of Ethiopians (Dercon & Ayalew 2007). Thus, justice understood as "egalitarianism" (Crewett & Korf 2008) requires that everyone has free access to land for subsistence farming. Economically, more capital-intensive forms of agricultural production would leave the high amount of labour unused, and would thus undermine the economic strategy of Agricultural Development-Led Industrialization, ADLI (EEA/EEPRI 2002). Large industrialized farms, the government argues, would be both inefficient and inhuman, since "thousands of small holders" (Rural Development Policy and Strategy 2003) would have to be displaced. Furthermore, an increasing share of landless farmers, migrating to the urban centres, might pose a threat to political stability (Gebreselassie 2006). To some extent, the fact that 61% of peasants indicate being in favour of the current system as opposed to 38% being opposed to it confirms this view (Nega et al. 2003).

Another argument frequently cited on the government's side refers to historical justice. The public ownership would, so the argument goes, prevent the concentration of land in the hands of a few, thereby avoiding a reintroduction of the exploitative tenancy of the feudal system under the imperial regime (Crewett & Korf 2008, Nega et al. 2003 and Yigremew 2002). Again, this would be both inhuman and inefficient, the latter being the case because, according to the government's Rural Development Policy and Strategies 2003, "wage labor […] has less incentive to put in the maximum amount of work." With regard to the threat of land concentration through distress sales, however, surveys are less supportive of the government's argument. Indeed, 90% of farmers indicate that they would not sell their land, and 47% would rather rent than sell their land during stressful periods (Nega et al. 2003).

The Ethiopian Economic Association (EEA) and the Bretton Woods Institutions, in particular the World Bank, counter the government's reasoning by pointing to inefficiencies caused by increasing fragmentation of land, tenure insecurity as well as the absence of a market (EEA/EEPRI 2002 and Gebeyehu 2013). Fragmentation indeed constitutes a serious problem in Ethiopia. Even though agricultural productivity largely depends on the characteristics of the respective crop as well as the specific agro-economic conditions, a mean farm size of 1.02 hectare (Nega et al. 2003), on an average of 2.3 plots and owned by a mean household with 5 members, is often insufficient for subsistence farming. In fact, 40.6% of farmers operate on less than 0.5 hectare of land (Gebreselassie 2006), with overall 10% being completely landless. Because of population growth, the problem aggravates when households divide their holdings such that the families of the children can cultivate their own plot of land (Gebeyehu 2013). The problem of fragmentation is also confirmed by the expressed concerns of Ethiopian farmers, out of whom 77% indicate that they do not have enough land to produce sufficient food for their families, and 44% of those dissatisfied with the system (38%) indicate insufficient access to land as the dominant reason (Nega et al. 2003).

Proponents of land liberalization therefore argue that the increasing fragmentation endangers the basis of income of a large share of the Ethiopian society. Liberalization, in contrast, would allow achieving higher efficiency and thus higher income per hectare, because relative costs of inputs and investments in technologies as well as sustainable practices are lower for larger land sizes (Gebeyehu 2013). Demeke et al.'s finding (1998) that land size is the most important determinant of the use of fertilizer in Ethiopia seems to back this thesis.

Another outcome of public ownership of land, considered to have a harmful impact on farming income, is tenure insecurity. Surveys with regard to perceived tenure security are largely open to interpretation. While only 9% indicate that they expect a land redistribution to take place within the next 5 years, 27% don't (Dercon & Krishnan 2010). The majoritarian "don't know" of the rest of the farmers has sometimes been considered as representing perceived tenure insecurity (Nega et al. 2003). This, however, is an interpretation that might be debated.

The most important argument with regard to tenure insecurity is its impact on investment decisions in technology and conversation measures: If farmers cannot be certain that they will keep their land in the long run, they might be less likely to invest today in order to have a higher return in the future. This, as

Grover & Temesgen argue for instance, would not only decrease efficiency as technological inputs remain unused, but also accelerate land degradation, since farmers uncertain about their property rights might tend to plant less trees, establish less terraces, or adopt unsustainable fallowing cycles (2006). Furthermore, as long as property rights are not secure, access to credit remains limited for poor farmers, because land cannot be used as collateral (Gebeyehu 2013). Credit, in turn, is often considered to be essential for allowing investments in efficient and sustainable technology as well as to overcome stressful periods. As a result, either credit is not available at all, or transaction costs of borrowing are unnecessarily high, since the financial institution will have to invest more heavily in screening and monitoring. In this respect however, land registration and certification might be a suitable tool to mitigate this problem.

Finally, the absence of a free market is often cited as a hindrance in Ethiopia's agricultural development. This circumstance, economists argue, leads to an inefficient allocation of factors of production, resulting in particular in an underutilization of land (EEA/EEPRI 2002). In the absence of a free market, the argument goes, physical (e.g. land, seed, fertilizer, oxen) as well as human capital (e.g. health, education) follows a suboptimal allocation, leading to an underutilization of physical and human resources (Yigremew 2002). While renting schemes might appear as a possible solution to this problem, critics point to the limitations imposed on renting agreements concerning size and duration. Another structural problem associated with the absence of a free market is a supposed discouragement of non-farming income earning activities. Since farmers cannot sell their land, or rent out all of it for an unlimited time, they lack the incentive to search alternative forms of employment (Gebeyehu 2013). Indeed, a higher segment of the Ethiopian society in the secondary and tertiary sector of the economy could also offer a suitable solution to the fragmentation problem. The government, in contrast, rejects such an argument by pointing to the lack and insecurity of alternative income earning activities in Ethiopia. According to this view, the restrictions on the sale and lease of land serves as an insurance for farmers who do not succeed in finding alternative employment opportunities (Rural Development Policy and Strategies 2003).

Besides this equity versus efficiency debate between the Ethiopian government and some economists, an emerging third point of view has recently taken a more analytical approach. Davies, for instance, has argued that the land rights regime is, and has been, primarily the result of a political instead of an economic consideration (2008). Accordingly, the tenure system serves the purpose of controlling the Ethiopian people. In fact, Crewett et al. argued that during the Derg regime, the Peasant Associations and Agricultural Producer Cooperatives were created as an "instrument […] to control and govern the peasantry" (2008). Similarly, the public ownership of land today would be a useful tool in limiting urban migration of impoverished people, carrying the potential for political unrest and thus endangering the power of the ruling élites (Davies 2008). The government's explicit reference to the land rights regime as a stabilizing factor seems to support this analysis. Such a conclusion however would imply that economic arguments are unlikely to initiate a policy change. Rather, as Davies argues, the advancement of a government relying on legitimacy instead of seeking to prevent impoverished masses from migrating to the cities would seem to be the more promising path for change.

2.3 Empirical Research to the Rescue?

Unfortunately, the empirical evidence is much narrower than the range of theoretical arguments. Empirical studies have mainly focused on the impact of tenure insecurity on investment since more investment is expected to increase both efficiency and sustainability of farming. Thus, the acute problem of increasing land fragmentation might also be addressed through enhanced tenure security, since more efficiency would lead to higher income per hectare of cultivated land. However, while some authors (Deininger et al. 2003, Dercon & Ayalew 2007, Gebremedhin et al. 2003) have found a positive relationship between tenure security and investment, others (Holden & Yohannes 2001) have found no relation at all. Thus, as Crewett & Korf noticed, empirical evidence is (still) far from being conclusive (2008). Before summarizing the findings of some of these studies, it should be pointed out that empirical research in Ethiopia often has to deal with difficulties associated to lack of data as well as endogeneity of tenure security. (Planting trees for

instance might effectively be the result of increased tenure security, but it could also be a measure to increase tenure security by marking the boundary between two farmers' lands.) (Dercon & Ayalew 2007).

One of the studies that has been cited more frequently in the literature, in particular on the pro-liberalization side, is the paper of Deininger et al. (2003). Based on a 2001 national survey of 8,540 farm households, they found that households who are unsure whether or not a redistribution is going to take place in the village are 5% less likely to establish terraces and 4% less likely to plant trees, measures that would increase both efficiency and sustainability. The expectation of a redistribution to occur within the next 5 years further decreases the probability of terracing by 18%. In addition, if private property was introduced in the sense that land could be transferred freely, the propensity to terrace would increase by 32%. However, Deininger et al. found no further impact of land transferability on planting trees, indicating that liberalization would have different effects on different investment and conservation measures. Overall, the authors calculate that a cancellation of future redistributions would increase the annual output by 1.5% through terracing, and adding transferability of land rights would increase output by an additional 4.4%.

Gebremedhin et al. (2003) as well as Gebremedhin & Swinton (2001) seem to confirm this relationship, even though to a lesser degree. While the former found a positive relation between duration since last redistribution and investment in stone terraces in the Northern Highlands, the latter concluded that farmers' perceived tenure security in Tigray was positively associated with conservation investments, for instance by establishing stone terraces (Dercon & Ayalew 2007). Gebremedhin et al. however also found that, even though regions with more landlessness tend to invest less in stone terraces as might be expected from their other findings, the same regions actually invest more in soil bunds (2003).

Dercon & Ayalew (2007) analyzed the impact of tenure security on the planting of perennial crops which can be considered a long-term investment. Their findings indicate that a household with full perceived transfer rights allocate 4.5% more land to such crops than a household that perceives to have no transfer rights. Furthermore, they calculate that if full transfer rights were implemented, the total land area allocated to coffee, which in general earns a higher income, would increase by 22%.

These findings supporting a liberalization of land rights are countered by Holden & Yohannes' research in Southern Ethiopia (2001). They found that tenure security had no direct impact on household's decision to purchase farm inputs. In their conclusion, they argue that

> "If there are any effects of the land redistribution policy, these are
>
> - That it has improved the access to purchased farm inputs among all households in the areas where the policy has caused a significant positive correlation between relative farm size and tenure insecurity, and particularly so for the most land-poor households
> - That it has stimulated the more wealthy households to protect their land rights in the sites where perennials are grown."

Despite the fact that such an assessment rather backs further redistribution than encouraging individualization and liberalization of land rights, the authors' findings are not necessarily incompatible with above cited results. If one was to conclude on the impact of tenure security on investment patterns in rural Ethiopia on the basis of the previously outlined research, he probably would state that increasing tenure security has a positive impact on investment in conservation measures, in particular terracing, while it is rather negatively associated with investment in technology in terms of farm inputs. It would be premature however to draw such a conclusion from the cited empirical evidence.

More recently, an empirical study beyond the private-public dichotomy was published by Deininger et al. (2009). Analyzing the impact of the land certification campaign in Amhara, they found, quite significantly, that certification increases the probability to invest in soil and water conservation measures by 30% and more than doubles the number of hours spent on such activities. Since they also found that certification increases the propensity to rent out land by 13% and the amount of land rented out by 9%, land certification might not only provide an answer to land degradation, but also addresses the concern of an inefficient allocation of land and land fragmentation. Finally, the authors calculated that the costs of certification were covered after the first year of implementation of the programme.

3 Customary and Statutory Law in Ghana

Ghana is one of the fastest growing economies in Africa, with an annual growth rate of 7.9% in 2012 (World Bank Data). Despite an increasing interest of foreign investors in the country, agriculture and subsistence farming still play a crucial role for 60% of Ghanaians who earn their living in the primary sector of the economy (Agbosu 2000). Land law therefore constitutes an important factor in fighting poverty. The land tenure system in Ghana is characterized by a pluralist structure, where customary law is constitutionally recognized. The implications of such a dual system have been discussed extensively in the literature. However, a consensus with regard to whether the benefits outweigh the costs has not been reached so far.

3.1 Land Rights in Ghana

The 1992 Constitution divides land in Ghana into public and customary held land. It is estimated that 80% of land is "stool land" (Hughes et al. 2011), i.e. follows the customary law of the stool or skin, whereas 20% of land is held by the state. "Stool land" is called that land which is held by the community, but "stool" also designates the traditional chief of the community who administers the land. Thus, Article 267(1) of the Ghanaian Constitution states that "[a]ll stool lands in Ghana shall vest in the appropriate stool on behalf of, and in trust for the subjects of the stool in accordance with customary law and usage", thereby legalizing customary law. Customary law distinguishes between the allodial title, freeholder title, and various other types of interest over land, thus deviating from the Western notion of individual property (Djokoto & Opoku 2010). The allodial title can be described as the "ultimate authority in land matters" (Kasanga 2003) and is de facto held by the chief, even though some authors have rightly insisted that, traditionally, the chief was not the "holder" of the allodial title, but rather the custodian thereof (Ubink 2008). In any case, the chief is charged with the management of land within the community, e.g. by granting uncultivated land to individuals or families who ask for a plot of arable land. Customarily as well as constitutionally, he has the duty to execute his responsibility in the best interest of the community. In this respect, Article 36(8) of the 1992 constitution provides that

> "[t]he State shall recognise that ownership and possession of land carry a social obligation to serve the larger community and, in particular, the State shall recognise that the managers of public, stool, skin and family lands are fiduciaries charged with the obligation to discharge their functions for the benefit respectively of the people of Ghana, of the stool, skin, or family concerned and are accountable as fiduciaries in this regard."

The derivative freehold title includes the right to develop and cultivate land. It is held by individuals or groups/families and is perpetual and inheritable. Furthermore, land cannot be alienated by the holder of the allodial title without the consent of the freeholder, i.e. the usufructuary. Other derivative titles are leasehold interests and lesser interests, for instance within sharecropping arrangements (Blocher 2006).

Besides these customary rules, there exists a whole range of state institutions which supervise, and, in some respect, intervene quite considerably in the customary land management. Firstly, the Lands Commission, created in 1971, is charged with the overall supervision of land as well as with giving advice with regard to land management (Ubink & Quan 2008). Most significantly, Article 267(3) of the 1992 Constitution states that

> "[t]here shall be no disposition or development of any stool land unless the Regional Lands Commission of the region in which the land is situated has certified that the disposition or development is consistent with the development plan drawn up or approved by the planning authority for the area concerned."

Those development plans of land are drawn by the District Assembly, the most important state institution within the regions, endowed with the power to pass by-laws. Hence, the land management activities of the chief are supposed to be compatible with these land use planning schemes (Ubink & Quan 2008).

Secondly, the Office of the Administrator of Stool Lands (OASL) is charged with the administration of a stool lands account "into which shall be paid all rents, dues, royalties, revenues or other payments whether in the nature of income or capital from the stool lands" (Article 267(2a) of the 1992 Constitution). The subsequent distribution of those revenues is regulated by Article 267(6) of the Constitution. Accordingly, 10% of revenues go to the Office of the Administrator of Stool Lands, while the remaining 90% are disbursed according to the following formula:

- 25% go to the stool for its maintenance;
- 20% go to the traditional authority;
- 55% go to the District Assembly (Fiadzigbey 2006).

Thirdly, the state courts are responsible for the resolution of all kinds of land litigation in accordance with constitutional as well as customary law.

In practice however "most people ignore [statutory law] whenever possible", as Blocher put it (2006). Revenues from stool lands, in particular when sold, are seldom transferred to the stool lands account. Traditionally, chiefs received "drinks money" for their management services, consisting of schnapps or kola nuts. With increasing scarcity of land, the "drinks money" has progressively been increased and generally constitutes the effective purchase price today. Chiefs however still claim that those revenues, being "drinks money", do not have to be handed over to the Office of the Administrator of Stool Lands, thereby circumventing the constitutional provision. In particular in peri-urban areas where land is scarce and therefore valuable, the only revenues in the stool lands account originate from ground rents, i.e. annual government fees payable on land leases. As Ubink & Quan calculated, the total amount of ground rent on a 99 year residential lease adds up to only about 5% of the amount of "drinks money" (2008).

Similarly, the constitutional obligation of the chief to obtain the consent of the Lands Administration when allocating land is largely ignored. In fact, approval is never asked before the transaction, and only sometimes afterwards. In that case however, it is the lessee instead of the chief who asks for the formalization of their acquisition. This picture of disregard of statutory provisions is confirmed by a survey of 242 people in peri-urban Kumasi in which 50.8% indicated that they had never heard about the Lands Commission, and 27% were not aware of its tasks and functions (Ubink & Quan 2008). Overall, land registration and certification is strongly limited with indeterminate boundaries being the consequence. The Land Title Registration Law of 1986 was highly ineffective in initiating a coherent and efficient certification process. It is estimated that only 5% of farmland has been registered in the aftermath of the law (Blocher 2006).

3.2 Internal Inconsistencies and External Pressures

The theoretical justification for legalizing customary rules can be traced back to the New Institutional Economics of Ronald Coase and Douglass North. In their view, summarized by Blocher, introducing external rules like property rights which are significantly different from local norms and practices is economically inefficient because it involves very high transaction costs (2006). Implementing laws of the Anglo-American tradition in Western Africa which are neither practiced nor known by the local population indeed seems to imply some considerable costs in terms of communication as well as enforcement. If, in addition, enforcement mechanisms are particularly weak, as Blocher argues, transaction costs are even higher since such structures first need to be established. Therefore, relying upon traditional norms and customs can significantly decrease transaction costs making transactions of property for instance much more valuable. Other arguments supporting the recognition of customary rules by the state which can be found in the literature include a higher degree of decentralization, as well as an inherent flexibility and a better accessibility of customary law (Crook 2004).

Why then is Ghana's land tenure system constantly criticized for being inequitable and inefficient? There are in particular two factors causing mainly three distinguishable but interrelated problems. The latter are the lack of accountability of chiefs, an institutional fragmentation and inefficiency, and the compulsory

acquisition of land by the state. The two factors thought to aggravate these problems are, first, an inherent inconsistency of customary law and, second, external pressures of population growth, urbanization and commercialization, the former becoming particularly problematic as a result of the intensification of the latter.

Customary law is defined within the Ghanaian Constitution as "the rules of law which by custom are applicable to particular communities in Ghana" (Article 11(3)). From a legalistic perspective, the reliance of customary law on customs, while being perfectly reasonable, poses several problems of equivocality conditioned by the fact that customs change over time and space, are not recorded in a written form, and lack a designated authority charged with the creation and interpretation of customs (Ubink 2008). As a result, the application of customary law is, more so than that of Anglo-American law, a question of definitions. Consequently, as Ubink pointed out, "'the power to name' can be a highly political issue" (2008). Therefore, political power relations play a crucial role in the practice of customary law with far-reaching consequences as will be illustrated hereafter.

There is however another characteristic of Ghanaian customary law which is difficult to reconcile with the Anglo-American conception of legality. As should be clear by now, customary land rights in Ghana are not based on individual ownership (Djokoto & Opoku 2010). Rather, different parties usually own different interests on the same plot of land. The conception of land as an asset of and for the whole community, village or family causes problems related to the alienation or registration of land. For instance, one difficulty of the 1986 initiative to register land was that the owner of the freehold title was sometimes registered before the owner of the allodial title of the same plot of land, which then caused land disputes when the holder of the allodial title did not recognize the registered freeholder (Kasanga & Kotey 2001).

The other, external factor is associated with the economic development of Ghana. A considerable population growth, together with enhanced urbanization and commercialization of farmland has led to an increased conversion of land into residential or commercially used land, where cash crops such as cocoa or oil palm are grown (Fiadzigbey 2006). Without assessing the overall impact of this development on the Ghanaian population, this has led to a scarcity of land and aggravated problems of access to land and landlessness for some segments of society, in particular for the rural population in peri-urban areas. For example, the number of inhabitants of Kumasi, the capital of the Ashanti Region, has grown by 4.2% per annum since 1960 (Ubink 2008). Hence, the increasing scarcity and valuation of land has created pressures and incentives that were absent at the time when customary law was shaped (Kasanga & Kotey 2001).

3.3 Grievances in the Land Tenure System

The first problem emerging from the combination of an increased valuation of land in peri-urban areas and an inherent ambiguity of customary law is that some chiefs have started selling or leasing land to outsiders for their own benefit. Historically, the position of chiefs was not as strong as it is de facto (as opposed to de jure) today. The British colonizers have strengthened the power of chiefs in order to be able to use them to control land and the rural population. For instance, the Wa conference in 1933, invoked to ascertain the customs of the communities in Northern Ghana, "went beyond the re-establishment of traditional structures, to defining entirely new ones more in accord with the administrations requirement for the purposes of indirect rule" (Ladouceur quoted in Kunbuor 2002). In fact, for the previously acephalous Dagara and other communities in Northern Ghana, the institution of a chieftaincy was newly created by the British. The resulting strong position of chiefs allows them today to seek own benefits without being challenged by other institutions. While the chief is traditionally obliged to take into account the advice of his people, and might even be subject to a destoolment procedure if he fails to do so, chiefs in peri-urban Kumasi today often either do not listen to advice or co-opt "his elders by sharing the benefits from land administration with them" (Ubink 2008). As pointed out earlier, "drinks money" is most of the time not transferred to the Office of the Administrator of Stool Lands such that profits from land sales in times and places where land is scarce can be quite remarkable. Being de facto accountable to nobody and using their political power within the community to define and interpret customary law, chiefs are often capable of disregarding the constitutional and customary obligation to serve the interest of the community.

The second problem emerges from institutional fragmentation and inefficiency of the Ghanaian land tenure system. While there are several dimensions to the problem of institutional weakness, one of the most significant underlying causes seems to be the "ad hoc approach" (Fiadzigbey 2006) adopted by the Ghanaian government, where problems of land administration are dealt with as they arise. This has led to a strong degree of institutional fragmentation and a lack of legal harmonization between customary and statutory law, but also within statutory law itself. For example, Article 267(5) of the 1992 Constitutions states that "[...] no interest in, or right over, any stool land in Ghana shall be created which vests in any person or body of persons a freehold interest howsoever described." This however seems to contradict the very essence of customary law based on the granting of freehold interest to community members (Hughes et al. 2011).

Most importantly, the state institutions mentioned above are unable and/or unwilling to assume their responsibilities for several reasons. First, the institutions lack funds, equipment and qualified staff (Ubink & Quan 2008). The large backlog in land cases at state courts (Fiadzigbey 2006), the drawing of land use plans based on inaccurate site plans within the District Assembly (Kasanga & Kotey 2001) and the fact that it takes on average between six months and two years to process a document submitted to the Lands Commission (Ubink & Quan 2008) are only three examples illustrating this problem. Second, corruption and mismanagement are widespread within these institutions, resulting for instance in a very inefficient functioning of the state courts because as many as 20-30 hearings of cases are sometimes scheduled for a single morning (Ubink 2008). Third, checks and balances are often insufficiently implemented. For example, the District Chief Executives, appointed by the President, are accountable to nobody in the districts or regions (Kasanga & Kotey 2001). Finally, many of the mechanisms of state supervision and intervention require the cooperation of the chiefs, for instance in order to register land or develop planning schemes of land use. Those however have no incentive to cooperate since this would help the state to impose effective control mechanisms upon their land management (Ubink 2008).

Third, the compulsory acquisition of land by the state is often regarded as a major hindrance in Ghana's rural development. The 1992 Constitution provides that land can be compulsory acquired for a public purpose and against "the prompt payment of fair and adequate compensation" (Article 20(2a)). These rules however are not always adhered to by the state. In fact, cases can be found in the literature where the state compulsory acquired land and leased or sold it to outsiders or left it unused. For example, in 1996 Kotey reported that the state had expropriated most of the land of the indigenous people of Tema, parts of which remained unused at least until 2001 (Kasanga & Kotey 2001). Furthermore, compensations are sometimes delayed or not paid at all. According to Kasanga & Kotey, outstanding compensation claims as to December 1999 were estimated at 800,000,000,000 cedis (US$ 110m) based on evidence from the Land Valuation Board (2001). While this impression of huge outstanding compensations is not necessarily confirmed by the number of court cases against the government, constituting only 1.2% of all cases in a survey within three state courts conducted by Crook, this might actually be the case, as Crooks suggests, because people are reluctant to sue the government (2004).

Hence, land conversions without consultation of the community by chiefs, compulsory land acquisition without adequate compensation by the government, and institutional fragmentation and inefficiency, failing to provide an ex ante control of the land management conducted by the chief, as well as an ex post complaint mechanism for the local population (for instance through the state courts) result in inequity with regard to the access, and inefficiency with regard to the usage of land. Land conversions and the compulsory acquisition of land are likely to cause even more scarcity in land and thus exacerbate the problems of insufficient access to land and landlessness. Furthermore, since the application of customary law depends on power relations within the community, as mentioned above, marginalized and vulnerable subjects of society are particularly likely to be excluded from access to land, but also from the general public decision-making process. Particularly women are disadvantaged in customary land law with regard to the distribution of land rights after marriage as well as with regard to customary law of succession (Djokoto & Opoku 2010). Finally, community members are often deprived of revenues intended to benefit the common good either through the chiefs or the District Assemblies, both being unaccountable towards the communities.

Tenure insecurity is particularly caused by insufficient access to courts, the inherent uncertainty of customary law, unregistered land and indeterminate boundaries as well as the power and autonomy of chiefs. As a result, poor farmers lack the incentive to invest in their land and, since they cannot use land as collateral, have little access to credit. In addition, the under-utilization of compulsory acquired land by the state further decreases the overall efficiency of land use in Ghana. Evidence for the claim that ordinary community members, because of their weak position within the land administration process, have little incentive to invest in their land has been provided by Goldstein & Udry. They found that, in Southern Ghana, officeholders leave their plots fallow for almost two years longer than others in the same household, thus earning a higher income. Furthermore, their finding that individuals have on the order of a one in three chance of losing control over a plot in any year in which it is not cultivated seems to confirm the thesis that tenure security, being de facto subject to customary law, largely depends on political power and influence within the community (2008).

3.4 A Political Explanation

In consequence of the foregoing analysis, the government appears to be the primarily responsible actor in mitigating problems of inequity and inefficiency by providing effective and efficient institutions capable of supervising the chiefs' land management, acquiring land only in accordance with constitutional conditions, and guaranteeing a reliable and functioning court system. The rhetoric of the government, as it has been interpreted in the literature, suggests however that the government has in fact no interest in providing such strong institutions. According to this interpretation, the lack of funds, staff, and equipment, the mismanagement and corruption, and the general policy of non-interference with regard to traditional authorities is a "deliberate course of the government" (Ubink 2008). Authors such as Ubink & Quan have argued that, in light of the chiefs' considerable local political power and influence, as well as their roles as key vote brokers, the government actively tries to avoid any conflict with chiefs (2008). In addition, in recent years there has been an increasing interaction and interdependence of chiefly and political personnel, with many government officials being local chiefs at the same time. Furthermore, as has been pointed out, the current President of the NPP is himself through marriage connected to the royal family of the Asantehene (Ubink & Quan 2008).

This interpretation seems to be confirmed by a narrative of Ubink & Quan based on an interview with the District Chief Executive of Ejisu-Juaben district in 2001. According to this account, government officials would be reluctant to bring a case of drinks money to the courts because this could "pose a serious danger to one's career". In fact, as Ubink & Quan report in 2008,

> "the one official we encountered who did want to go to court over a sum of 'drink money' of three billion Cedis (at at the time of sale the equivalent of approximately €300,000.-) claimed that he was stopped by 'the government,' because 'the president does not want to pay for such an action'".

3.5 Outlook

In 2003, the government, with the support of several international organizations such as the World Bank, has initiated the Land Administration Project (LAP) in the attempt to implement the National Land Policy of 1999 (Karikari 2006). The project, based on a 15-25 year period, aims at "laying the foundation for a sustainable decentralized land administration system that is fair, efficient, cost effective and ensures land tenure security" (Majeed 2010). Djokoto has identified the following four goals of the LAP: harmonizing legislation; supporting decentralized land administration systems; adopting of a series of pilot projects for testing different ways to register land; strengthening revenue generation within the land administration services (2010). While it is certainly too early to assess the overall impact of the project, critiques have been addressed with regard to the implementation of Customary Land Secretariats (CLSs) as well as the intention to implement an effective land titling system.

The Customary Land Secretariats are supposed to promote decentralization, relying on the legitimacy and authority of chiefs. Obviously, such an "empowerment of chiefs" by supplying them with technological equipment has strengthened rather than attenuated concerns about uncontrolled and unaccountable chiefs of those authors who ascribe the failures of the land tenure system to the policy of non-interference of the state (Ubink 2008 and Majeed 2010). Furthermore, some authors have pointed out that land titling might in fact decrease tenure security of holders of derivative interests (Majeed 2010).

Besides international donors who may possibly insist on a stronger integration of ordinary community members into affairs of land administration (which has been estimated to be unlikely by Majeed because of donors' main focus on commercial potentials), there seems to be another opportunity to strengthen the rights of the poor and marginalized. The court system, as Ubink has pointed out, has consistently protected the owners of freehold titles (2008). In their jurisdiction, courts have promoted secure usufructuary rights, taken the stance that farmers do not need the consent of their chief as allodial title holder to transfer land, and maintained that chiefs can be held accountable for the way they use stool land revenues (Ubink & Quan 2008).

Even though there are exceptions to these stances, the subsequent three cases illustrate to what extent the courts have upheld the constitutionally guaranteed duty of chiefs to serve the interest of the community. Regarding access to land, the Supreme Court declared in Frimpong v. Poku (1963) that "[…] a subject usually obtains the formal permission of the stool for the purpose [of cultivating stool land]. Permission is never refused but it is necessary in order to enable the stool to keep a check on cultivated areas."

In 1997, the Court of Appeal confirmed the right of owners of freehold titles to alienate land without consent of the chief:

> "[I]t is the owner of the possessory or usufructuary or determinable title to land who has the right of alienation […] without prior consent and concurrence of the paramount owner, so long as the alienation carries with it an obligation to recognize the title of the allodial owner and to perform customary services due to the allodial stool when called upon."

Finally, in 1991, the Supreme Court, overruling a decision of the Court of Appeal of 1981 which had stated that chiefs could not be held liable for accounts of their land management, held that

> "the principle of non-accountability cannot be projected above statutory requirements [referring to the statutory imperative that moneys from stool land acquisition should be lodged in a designated fund] to afford a viable protective umbrella" (Ubink 2008).

State courts thus seem to comprise the potential of providing poor farmers with a reliable opportunity to impose their statutorily guaranteed rights. As indicated earlier, the actual capacity of courts to provide such a legal protection is however somewhat limited.

Besides the procedural problems already mentioned, such as the large backlog of cases – in 2006, there were an estimated 35,000 land disputes before the courts (Fiadzigbey 2006) –, long procedures – the conclusion of a case takes an average minimum of 3-5 and a maximum of 8-15 years (Ubink 2008) –, unprepared lawyers etc., another major concern expressed in the literature focuses on a very limited impact of court decisions on chiefs' behaviour. Some authors have argued that the importance of precedents in courts' decisions tends to "freeze" customary law (Djokoto & Opoku 2010) and thus, sentences fall short in appreciating its dynamic and evolutionary character, thereby reducing the "local legitimacy" of decisions (Ubink 2008). Turning around this point of view, high court judge Baffoe Bonny affirmed: "What is in the courts is the customary law. Local practice differs from customary law because of 'ignorance' and 'opportunity'" (Ubink 2008). This statement however seems to be difficult to accept if one recognizes that customary law should be based on customs, displaying the ambiguous reality of customary law and particularly customary law-making. Ultimately, it appears unlikely that a policy intended to preserve the power of chiefs will strengthen the courts as the most important challenger of chiefs' land management. However, change that protects the rights of the rural poor might also be encouraged through more research, increased pressure of donors or the initiation of an internal reform process of the court system.

4 Gender Equality and Land Rights in India and Bangladesh

Gender equality is today considered one of the crucial premises for economic and social development. Most prominently, the third Millennium Development Goal focuses on gender equality and the empowerment of women (UN Millennium Goals). Equal rights for women, in particular with regard to access and control of land, are often considered both an end in itself and a valuable means to achieve better development outcomes. A decrease in domestic violence (Chowdhry 2011, Kelkar 2013), a more equitable intra-household income allocation (Kelkar 2013) and a higher productivity in agriculture (FAO 2011, Roy 2008) are some of the most frequently cited benefits of women's ownership of land. In India for instance, Panda and Agarwal found that women owning immovable property are significantly less likely to become victims of domestic violence (2005). Property titled in the name of women has also been identified to improve children's schooling and clothing in India (Landesa & UN Women 2012, IFPRI 2000).

4.1 Inheritance Law in India and Bangladesh

The literature about gender and land rights in India and Bangladesh identifies three main avenues for women to acquire land: the market, the government and through inheritance (Agarwal 2002). Purchase of land is often restricted by a lack of independent income of women (Paydar 2012) as well as a restricted access to markets. For example, it is sometimes culturally unacceptable for women to sell their livestock on the bazaar (Subramanian 1998). Secondly, governments only recently made gender equality a main feature of land redistribution programmes. In Bangladesh, the 1984 Land Reform Ordinance, imposing a land ceiling of 20 acres (Arens 2011), supported a more egalitarian titling of land for men and women (Sarwar et al. 2007). The overall impact of the redistribution effort remained quite limited however. It is estimated that one third of khas land, which is supposed to be distributed to the poor, has been occupied illegally by wealthy and influential people (Arens 2011). In India, gender targeted land reform appears to be more successful. While Gupta found in 1993 that in a village in the Midnapur district, 98% of the 107 holdings were allocated to men during a land reform in West Bengal in the 1970s and 1980s ("Operation Barga"), better results have been achieved ever since the Eighth Five Year Plan (1992-1997) of India explicitly promoted gender targeted redistribution by requiring state governments to allocate 40% of ceiling surplus land to women alone and the rest jointly to both spouses (Agarwal 2002). The results of such provisions can be observed in the land reform in Andhra Pradesh between 1997 and 2010 for instance, where over 5,000 women received individual land titles (Kelkar 2013).

The third and quantitatively most significant way in which women can acquire land is through inheritance. In what follows, the legal and social norms governing the inheritance of land in India and Bangladesh will be discussed in greater detail. It should be noted beforehand however that data with regard to women's ownership of land is scarce and far from covering the entirety of the respective populations.

Both the Constitution of Bangladesh and India prohibit any kind of discrimination on grounds of sex (Article 28 of the Constitution of the People's Republic of Bangladesh and Article 15 of the Constitution of India). The Bangladeshi Constitution even explicitly states that "[w]omen shall have equal rights with men in all spheres of the State and of public life" and "[n]othing in this article shall prevent the State from making special provision in favour of women or children or for the advancement of any backward section of citizens" (Article 28).

Nevertheless, since inheritance rights are part of personal law governed by Muslim and Hindu law (Raihan et al. 2009), discriminatory legal provisions regarding inheritance in India and Bangladesh have long been and still are valid. As 90% of the population of Bangladesh are Muslim (USAID 2010) and 86% of the Indian population are governed by Hindu inheritance law (including Buddhists, Jains and Sikhs) (Anderson & Genicot 2012), the subsequent legal analysis of inheritance of land will be limited to Muslim law in Bangladesh and Hindu law in India.

In Bangladesh, inheritance law originates from the customs of ancient Arabia as well as the more egalitarian rules introduced by the Qur'an and practices of Muhammad (Sarwar et al. 2007). According to those provisions, heirs are partitioned into "sharers", "residuaries" and "distant kinreds". "Sharers" are entitled to a prescribed share of the inheritance and can never be excluded. They comprise mother, father, husband, wife, son and daughter (Subramanian 1998). "Residuaries" obtain a prescribed share but succeed to the residue after satisfying the claims of the "sharers". Finally, "distant kinreds" succeed in the absence of sharers and "residuaries" (Raihan et al. 2009). It should be noted that the son's children of the deceased are considered "residuaries" whereas the daughter's children count as "kinreds", thus receiving a smaller share of the deceased's estate (Sarwar et al. 2007). Depending on the composition of the family,

- the daughter gets half the property if she is the only child;
- the daughters get together two third if there are no sons;
- each daughter gets half of the son's shares if there is one son or more (Subramanian 1998).

A widow obtains one eighth of her deceased husband's share if there is a child and one quarter if there is none (Raihan et al. 2009). If the deceased husband had more than one wife, the wives divide their share equally amongst them (Subramanian 1998). In general, the husband gets double of what the widow gets (Raihan et al. 2009). Hence, in all cases, women who are wives, daughters or mothers inherit a share of the deceased's estate, but this share is often smaller than what their male counterparts obtain (Subramanian 1998).

In India, inheritance for the majority of the population is regulated by the Hindu Succession Act (HSA) of 1956, incorporating the Mitakshara and the Dayabhaga schools of Hindu law (Agarwal 1995). Mitakshara law, and thus the HSA, distinguishes between separate and joint family property (Goyal et al. 2010). Joint family property is inherited ancestral property whereas separate property is individually purchased or inherited property other than from the paternal line (Anderson and Genicot 2012). While the inheritance of separate property in the HSA is non-discriminatory, joint family property until recently could not be inherited by female heirs. In 2005, however, the Hindu Succession Act Amendment (HSAA), which had been introduced earlier in some Indian states (in Andhra Pradesh in 1986, in Maharashtra in 1989, and in Karnataka and Tamil Nadu in 1994), made the daughter of a coparcener a coparcener herself by birth, thereby elevating the status of the daughter to that of the son. This elimination of legal discrimination against female heirs was made applicable nationwide in 2005 (Goyal et al. 2010). Another critique of the HSA has focused on its exclusion of tenancy rights. Prior to 2005, those were governed by state tenurial laws which sometimes discriminated against women. For instance, the inheritance of tenancy rights in Bihar and Orissa, as Agarwal pointed out, were "subject to any custom to the contrary", regardless of the potential discriminatory character of such customs (1995).

4.2 Socio-cultural Norms of Inheritance

Despite the fact that since 2005 inheritance rights in India are non-discriminatory, it is estimated that only 10% of privately hold land is titled in the name of women (Scalise 2009). Case studies seem to confirm this number. For instance, in a survey of 504 women in Andhra Pradesh and Bihar conducted by Landesa and UN Women in 2011, 12% of women indicated that they have or believe that they will inherit land from their parents (Kelkar 2013). In fact, while Goyal, Deininger & Nagarajan found that the improved inheritance rights for women through the HSAA increased the likelihood of daughters to inherit land from their father by 22%, which according to the authors was still insufficient to completely compensate for gender discrimination (2010), Brulé (2012) as well as Roy (2013) found no equalizing impact of the reform on inheritance practices. (Roy however found that exposure to the reform increased mean female education attainment by 1.1 to 1.3 years.)

In Bangladesh, only 3.5% of land is titled in the name of women as of 1996, and out of these female headed households, only 0.18% own land above 7.5 acres (Raihan et al. 2009). Thus, in India and Bangladesh, land rights even where they are discriminatory, cannot account solely for women's limited access to land. The following discussion, distinguishing between females' role within the marital family, females' role within

the natal family, and females' role in society, will therefore focus on socio-cultural mechanisms restraining women's capacity to take full advantage of their inheritance rights.

4.2.1 Gender Roles in the Marital Household

Before analyzing women's role in their marital family, it is interesting to notice that surveys suggest that widows in general are more likely to inherit a share of their deceased husband's plot than daughters do from their deceased father's land (Rao 2011, Agarwal 2002). In a survey of 427 women in the village of Jhagrapur in Bangladesh for instance, 63% of the widows had inherited land from their husbands whereas only 36% had inherited land from their father or mother (Arens 2011).

Women's activities in their marital household include food processing and education of children, but also postharvest processing and livestock and poultry rearing (ADB 2010). In fact, Rahman found in a survey of 1,839 households from 16 villages in two agro-agricultural regions in Bangladesh that women spent on average 3.1 hours per day on agricultural work whereas men spent 5.1 hours (2009), illustrating to what extent women are an important part of agricultural activities. Despite this considerable contribution of women to agricultural processing, wives often have a weak bargaining position towards their husbands in decision making concerning land issues, being a consequence as well as a source of women's lack of access to land. With regard to the former, lack of property, preventing women from credibly threatening to exclude their husband from exploiting her productive assets, is considered to lessen women's voice in intra-household decision-making and bargaining (Paydar 2012). Concerning the latter, a weak bargaining position of wives might for instance decrease the likelihood of joint titling of plots. Furthermore, decisions with regard to inheritance within a family may be more gendered if women have no say in who will inherit land and property. Based on the survey of Landesa and UN Women in India, Kelkar mentioned that only 8% of women viewed themselves as decision makers about land inheritance (2013). The underlying reason for women's weak intra-household bargaining position is often considered to be their "stronger fall-back position outside marriage" (Roy 2008). Less access to land and lower wages as well as cultural limits to outside employment opportunities (Sarwar et al. 2007) might constitute some of the most significant restrictions on women's outside options. In Bangladesh for instance, it is estimated that women only earn 60-65% of what men earn in agriculture (Scalise 2009).

The literature about gender and land rights sometimes distinguishes between ownership of and control over land. In fact, Arens has argued that the major problem regarding gendered inheritance of land rights is not that women do not inherit land, but rather that they lack the necessary support to maintain control over their inherited plots (2011). One of the reasons why women might lose their land (and therefore are not made heirs in the first place) is considered to be the patrilocal practice in India and Bangladesh. Since women usually move to their husband's village after marriage, the land of their parents that they might potentially inherit at some point is sometimes too far away to be cultivated and effectively controlled by them, in particular when cultural norms restrict women's mobility (Subramanian 1998, Arens 2011). Therefore, fathers might tempt to either impose considerable social pressure on their daughters to make them renounce their share (Scalise 2009), or to circumvent legal provisions by gifting land to their sons (Sarwar et al. 2007).

4.2.2 Gender Roles in the Natal Household

Secondly, females' role within their natal family tends in several ways to prevent women from inheriting land. Most importantly, in the case of a marital crisis, divorce or when being widowed, wives depend on their natal family, in particular their brother, for maintenance. As a result, women, in line with the general societal expectations, often give up their rights over inherited land to keep relations with their natal family stable and access to the paternal home open (Subramanian 1998, Arens 2011, Paydar 2012, Agarwal 2002, Scalise 2009, Monsoor 1998). For instance, Sarwar et al. concluded from their research in two villages in the Noakhali district in Bangladesh that "the general opinion was that sisters who demand a share of land were 'bad' or 'naughty' and that that they claimed their share of land at the expense of their brothers" (2007).

In addition, dowry, despite having been outlawed by the Dowry Prohibition Act in India in 1961 and in Bangladesh in 1980, is increasingly practiced in particular in Bangladesh and constitutes an important hindrance in women's inheritance of land (World Bank 2008). It has been argued that with the constantly increasing value of dowry (from 2000 Taka in the mid 1980s to 20,000 Taka in 2010 according to Arens' research in Jhagrapur (2011) in Bangladesh), it is nowadays often regarded as a substitute for inheriting land – even though dowry does not remain in the woman's ownership but is transferred to her husband (Sarwar et al. 2007, Roy 2013, Scalise 2009, Arens 2011). Finally, in rural areas of India and Bangladesh, ancestral land often is ascribed a value beyond its economic significance in terms of tradition and identity (Sida 2010). The more important is it in patrilineage societies that land remains in the hands of male descendents (Agarwal 2002, Arens 2011). This symbolic value of land thus constitutes another incentive for heads of households to disinherit their daughters in societies where women become part of the household of their husbands – in particular when ownership of land is in addition closely associated with the social status and role as head of the household (Roy 2008).

4.2.3 Gender Roles in Society

Thirdly, females' role in society, often characterized by subordination and dependency on males, restricts women's independent access to information, interactions with official institutions, and mobility, thereby hindering an effective access to and control over land. The Muslim notion of "purdah" ("curtain") expresses this socially expected reticence of women (Paydar 2012, Arens 2011). Such an expectation, or rather the perception of the existence of such an expectation, is also reflected in surveys in India and Bangladesh. In Kelkar's presentation of the Landesa and UN Women survey in India, 50% of women indicated that they want to own land whereas 74% of sons would not want their wife to own land (2013). Interestingly, the survey also showed that

> "children with non-titled mothers speculated that women owning land would cause tension in the family (42%), while those whose mother had land in their name hardly ever cited this as a source of tension in the family (4%)" (Kelkar 2013).

In the same survey, only 19% of women indicated that they wanted to inherit land from their parents, and out of those who preferred not to inherit land, 39% said that it would make them look bad in the community. Another 19% indicated that this would cause problems with their brothers, reflecting the problem of dependency of women on the natal family in case of a marital crisis. The perception of socially expected renouncement on land rights can also be deducted from the fact that 60% of women believed that their village leaders did not recognize their rights to inherit land from their parents (Kelkar 2013). Similarly, in a survey of 191 households in two villages in Bangladesh, nearly 85% said that women should not inherit property from their parents because it was disgraceful to accept and un-prestigious to claim the father's property (Karim 2013).

Lack of information and legal illiteracy, potentially aggravated by such perceptions, is often cited as a major problem in realizing women's land rights (Agarwal 2002, Arens 2011). The Landesa and UN Women survey, according to Kelkar, seems to confirm this argument to some extent and accentuates the discrepancy between men and women regarding legal literacy (2013). In the survey, 40% of women said that they do not have a legal right to own land versus 85% of men said that the law recognized women's right to own land. The impression of other authors who had conducted case studies in Bangladesh however contradicts those numbers (Sarwar et al. 2007, Karim 2013, Arens 2011). Karim for instance states that "most of the respondents are well aware of their religious and legal rights in regard to property ownership" (2013). There is thus no conclusive evidence to whether or not legal illiteracy constitutes a major hindrance in improving women's access to land in India and Bangladesh, or whether legal literacy in both countries differs substantially amongst the populations.

Women's limited opportunity to generate support from state institutions, such as extension facilities, formal credit institutions or courts are, however, by most authors considered an important factor in explaining women's lack of control over land. In Parveen's research with 159 farmers' wives in three villages in the Mymensingh district in Bangladesh, he found that 44% of respondents had no opportunity to

receive services from different extension agencies like the Department of Agricultural Extension (DAE) or the Department of Livestock Services (DLS) (2008). In the survey sample of the Landesa and UN Women research in India, 61% of women did not interact with Revenue Office officials (Kelkar 2013). Regarding the access to credit as a crucial asset in overcoming stressful periods, in Bangladesh, while Sarwar et al. found that 87% received a limited amount of credit from informal institutions (2007), often at high interest rates, Subramanian pointed out that women cannot get credit from formal institutions without the signature of a male relative and, furthermore, that the targeting of women by micro-credit institutions does not necessarily imply that women have actual control over credit (1998). In fact, according to Subramanian citing a study of Rahman (1996), 90% of women at Grameen Bank were said to be directly influenced by their male guardians when becoming member of the bank. Moreover, as Sarwar et al. pointed out, women are likely to be particularly vulnerable to an inefficient court system since they lack "access to the legal and institutional services in a patriarchal society" (2007). Finally, in patrilocal societies, where, in addition, women traditionally are expected not to work in the fields (Subramanian 1998), lack of mobility seems likely to be a crucial factor in women losing control over inherited land (Agarwal 2002, Sarwar et al. 2007, Hatcher et al. 2005).

5 Conclusions

To conclude on the land rights issue in Ethiopia and its implications, three insights should be kept in mind. First, certification is a highly rewarding policy in Ethiopia. In fact, its benefits in terms of encouraging conservation measures are estimated to be nearly as high as expected gains from introducing a perfect transferability of tenure rights. The advantage of certification, besides its higher probability of being adopted, is that it respects and even strengthens Ethiopia's constitutional provision granting a plot of land to everyone who desires to engage in farming. Second, with regard to the major concern of land concentration expressed by the government, cautiously monitored pilot projects of liberalization of the land tenure system, as suggested by Gebreselassie (2006), might be a feasible approach to assess the degree to which transferability of tenure rights will actually lead to a concentration of land in the hands of a few. Third, it seems clear that attractive alternatives to farming need to be developed in order to prevent a further fragmentation of land, which can solely be addressed neither by private nor by public ownership of land alone.

While the ultimate benefit of recognizing statutory land law in Ghana remains open to discussion, it seems clear that the implementation of technology innovations needs to account for the particular institutional environment in which it is adopted. In this respect, the institutional arrangements and distribution of responsibilities that govern land ownership have to be well understood in order to be able to assess the capacity of official as well as traditional actors to exercise authority. In particular, technology innovations in Ghana are likely to be more successful when traditional chiefs, being largely recognized as legitimate authorities among the population, are integrated into the implementation of such policy processes.

The foregoing analysis of land rights in India and Bangladesh has also demonstrated to what extent legal norms are insufficient to guarantee gender equality and an equitable and efficient exploitation of productive resources. Interdependent cultural, social and religious norms and values play a crucial role in the application of formal laws. While non-discriminatory legal provisions regarding inheritance and other opportunities for women to acquire land are a necessary premise of gender equality and equitable development, they are by no means sufficient. Rather, where adverse effects of legal change are observed or can be expected, supportive institutional and policy interventions are necessary to mitigate undesirable consequences (e.g. Nathan & Apu 2002). We have provided examples from India which illustrate that legal change can have various unintended effects, ranging from improved female educational attainment (Roy 2013) to an increase (and equalization) of female and male suicide rates (Anderson & Genicot 2012). Hence, when it comes to the implementation of technology innovations, gender issues need to be considered. Taking an inclusive approach to the implementation of technology innovations by explicitly targeting women is likely to be a worthwhile endeavour.

Finally, this review has shown that technology innovations in agriculture are embedded into specific institutional frameworks, which differ across countries and regions. Since the introduction and impact of technological innovations depends on this institutional environment, the design of such interventions needs to account for the specific legal, social and cultural circumstances. In marginal rural areas, land and the benefits derived from it are among the most fundamental assets of the rural poor. Accordingly, the ties and relationships between people and the land have been shaped by institutions and vice versa, over generations. Land rights are an important part of this institutional environment. They play a crucial role particularly for the introduction and outcome of technological innovations. Some of the land rights aspects which have been considered in our analysis, if overlooked, have the potential to constitute considerable barriers to the implementation of technological innovations.

One of these aspects is the incentive structure which is strongly influenced by land rights. In Ethiopia, tenure insecurity might pose a barrier to long term technological investments. While different institutional reforms have been considered in order to modify the incentive structure, the most promising approach in Ethiopia appears to be the registration and certification of land. Complementing the implementation of technological innovations by such an institutional change might therefore strongly enhance the efficiency

and sustainability of introducing new technologies by incentivizing long term investments and increasing the access to financial markets.

In Ghana, different institutions with different de jure and de facto competences regarding land management are likely to play a crucial role for the effective implementation of technology innovations. When introducing technological change, the position of traditional chiefs as the de facto authorities of land rights has to be taken into account. In fact, where traditional agents are the legitimate authorities in land rights issues, they need to be actively involved in the process of implementing technological innovations in order to increase the legitimacy and sustainability of such technological change.

Gender equality plays an important role from both an equality and efficiency point of view. In India and Bangladesh, where succession law is determined by religious rules and, more importantly, through socio-culturally embedded gender roles, the impact of implementing technological innovation on gender equality and the empowerment of women cannot be ignored. In this respect, the benefits of targeting women during the implementation of technological innovations should be assessed. In any case, an inclusive approach seems necessary from an equality as well as productivity enhancement perspective.

Hence, when implementing technological innovations, one needs to understand the country (and region) specific institutional environment and land rights regimes. With institutions ranging from cultural norms and traditions to laws, that environment is typically very complex. In our analysis we have focused on land rights, recognizing the fact that they are embedded into specific institutional complexities. These complexities comprise of institutions which are nested and interlaced, which makes it difficult to clearly identify causalities and those institutions which inhibit innovation and the adoption of new technologies.

Despite those difficulties, it needs to be understood that changing institutions related to land also changes cost-benefit streams related to the land as well as incentives to invest into the land. Therefore, where institutional barriers to the effective implementation of technological innovations can be identified in advance, these barriers should be addressed explicitly. The land rights issues we have analyzed in Ethiopia, Ghana, India and Bangladesh suggest

- to provide incentives for investing into sustainable land management and adopting technological innovations, e.g., by land certification in Ethiopia
- to include stakeholders, like chiefs and other traditional authorities in Ghana, in the process of implementing technological innovations
- to target specific beneficiaries of technological innovations, like women in India and Bangladesh

While these approaches seem most promising with regard to the land rights aspects addressed in the countries we have been considered in this paper, accompanying and complementary measures aimed at overcoming institutional barriers to the effective implementation of technological innovations might well be necessary.

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