



Improving water use for dry season agriculture by marginal and tenant farmers in the Eastern Gangetic Plains

Inequitable land relations in the Eastern Gangetic Plains and the case for tenant collectives

Working Paper

Author: Fraser Sugden



Australian Government

**Australian Centre for
International Agricultural Research**

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Abstract

Tenant farmers represent a significant and marginalized group in the South Asia. Field research from the Eastern Gangetic Plains shows how tenants, most of whom are integrated into exploitative sharecropping relations, are particularly vulnerable in the context of climate change and rising living costs. Menial migrant labour is increasingly essential for these households to meet their subsistence needs. While only meaningful land reforms can bring about serious changes in prospects for tenant farmers, this paper suggests a short term solution for South Asia's most vulnerable farmers based upon tenant collectives which can raise productivity and increase resilience.

1. Introduction

Tenant agriculture remains a critical component of the agrarian system in many countries, most notably those in South Asia (Shah et al., 2009). Entrenched inequality, originating in the medieval and colonial land tax administration and caste hierarchy, means that deeply inequitable landlord-tenant relations persist to this day. These issues are all the more pertinent in the Eastern Gangetic Plains of India's Bihar state and the lowland Tarai belt of Nepal, which remain one of the most densely populated, and peripheral belts in South Asia. India's Bihar state is home to 100 million people, with population density of over 1102 per km², out of which a substantial 89% are rural (2011 census). The natural continuation of the Bihar plains, the Eastern and Central Tarai of Nepal, have a population of 8.5 million, accounting for 32% of Nepal's population (ISRC, 2013). Both regions have lagged behind in terms of human development, agriculture and food security.

Land tenure insecurity is one of the most significant challenges facing agriculture in the Eastern Gangetic Plains (Sugden and Gurung, 2012, Sugden et al., 2014a) and tenant farmers remain one of the most vulnerable groups. The region is now facing new patterns of agrarian stress, with the combined impact of climate change and multi-scalar political-economic processes (Sugden et al., 2014a). This paper identifies the important role of land tenure in both shaping patterns of vulnerability for the tenants, while also restricting the viability of new land and water management options which could otherwise help this group build their resilience to change.

While there has been a long established scholarship on agrarian relations in the region, recommendations for addressing the land tenure crisis remain elusive. This paper attempts to shed light on some possible solutions for tenant farmers through the collectivisation of

production, identifying both the opportunities as well as the remaining challenges to overcome. Collective leasing has the potential to revolutionize tenant farming, allowing producers to overcome tenure related investment barriers, increase their bargaining power with land owners, while building resilience to external pressures. This can only be considered a half way step towards more radical forms of land reform – a prospect which is highly unlikely without significant political change. The suggestions are nevertheless, of broader significance as reinvigorated collective models of production may represent a model for a more equitable agrarian future in South Asia.

2. Methods

Data was collected in a series of field visits to two districts in Nepal, Morang and Dhanusha, and one district in India's Bihar state, Madhubani. The three sites are located in within a 150km radius of each other yet represent very different socio-cultural and political domains within the eastern Gangetic plains. Dhanusha in Nepal and Madhubani in Bihar are both situated within the heartland of *Mithilanchal*, a region which spans both sides of the Indo-Nepal border and shares a common linguistic (Maithili) and cultural heritage. The third district, Morang, also within Nepal, is just east of the Koshi river at the fringes of *Mithilanchal*. Morang differs from Dhanusha and Madhubani in that it is predominantly home to indigenous tribal or *adivasi* populations with a quite different social structure and history of subordination to other ethnic groups of the region.

In Madhubani, Bhupatti and Rakuwari Panchayats which were selected for analysis, lie in a remote region of the district to the east of the Kamala river. Both include significantly sized core villages, with a number of satellite hamlets, often home to marginalized castes. In Dhanusha, Thadi-Jijha VDC¹ was selected, along with its neighbour Ekrahi VDC. Both are situated further north on the Nepal side of the border just west of the Kamala river. East of the Koshi yet within Nepal, three VDCs from Morang, Jhorahat, Bhaudaha and Thalaha were selected. They are composed of relatively small mostly *adivasi* and *Dalit* villages spread out across the plains to the east of Biratnagar city. All villages were within the same corner of their respective district. Qualitative data was also collected in Haraicha VDC, slightly further north.

A randomly sampled survey was carried out for 5% of households in Dhanusha and Madhubani villages. A larger survey of 15% of households was carried out in Morang. This was because the villages were much smaller in size, and a larger sample would help ensure it was representative. A series of 66 qualitative household interviews were also carried out with both men and

¹ The local unit of government in Nepal, like the Indian Panchayat

women in each community in several visits between May 2012 and January 2013. This formed the primary source of data on land tenure and vulnerability, although 10 focus groups were also carried out to give a group perspective.

For the second part of the paper on agricultural collectives, data was compiled from secondary sources, in particular, the emerging body of research into collective farming arrangements in India. However, three separate field visits were made to existing collectives in the region – in both Morang of Nepal, Bhojpur of Bihar and Cooch Behar of West Bengal, to collect on site qualitative information.

3. Part 1: Landlordism and poverty in the Eastern Gangetic Plains

3.1 Tenancy and land poverty

The three primary field sites both fall within the greater Mithilanchal region, spanning the Nepal-India border. Land inequalities were intensified in the wake of expanding feudal state formations from the 16th to 19th century. Madhubani, on the present day Indian side of the border, was under the rule of the Mughals between the 11th and 14th centuries, and later was under the sways of the Hindu Darbhanga Raj, who paid tribute to the Mughal and then the British colonial authorities (Chaudhury, 1964). The state tax collection apparatus under the pre-colonial and colonial zamindari system, combined with a rigid caste system, saw the development of a hierarchical agrarian system.

The first state formation on the Nepal side of the border with a significant impact on present day agrarian relations was the Sen Kingdom of central Nepal, which encompassed Morang and Dhanusha. This was followed by the Gorkhali dynasty, the founders of the present day Nepali state in the late 18th century (Gaige, 1976). The enforcement of a tax collection system similar to the zamindari system of India which propped up local elites, and the distribution of land grants to bureaucrats, fostered the emergence of a powerful landlord class. Even indigenous communities of the jungle belt to the east were gradually subordinated to feudalism as land grants encouraged the contraction of the forest frontier (Sugden, 2013). Inequality intensified during Nepal's Rana period in the 19th and early 20th century when the Tarai was a key source of revenue for the regime through agrarian taxation (Regmi, 1978).

In the 1950s and 60s, both Bihar and Nepal saw state implemented land reforms and the abolition of the traditional agrarian tax collection hierarchy. In Nepal for example the 1964 Land Related Act introduced ceilings on landholdings, regulated rents, and sought to redistribute surplus land (Adhikari, 2006, Regmi, 1976). Despite the stated objectives, there was limited political commitment to change, and reforms failed to create real transformations in agrarian

relations in Nepal. Ceilings were weakly enforced and little land was redistributed (Alden-Wily et al., 2008). By 1972 the 50,000 hectares of land estimated to have been acquired by the government represented only 3% of the cultivable area, and only 22,000 ha of this was thought to have been actually redistributed (Regmi, 1976). In both Bihar and Nepal, landlords were integrated into the state agencies actually implementing reforms, acting as a considerable impediment to change (Adhikari, 2006, Kishore, 2004, Sugden and Gurung, 2012). Oral histories in the study communities also note how landlords were able to avoid reforms using their political connections or deception to retain ownership of their holdings. Census data from Nepal suggests that landlessness has actually increased since the 1970s (Alden-Wily et al., 2008). Interviews suggested this was both due to market forces, with a rise in indebtedness, driving many marginal land owners into selling their holdings to urban dwellers and richer farmers, as well as population growth, which was increasing fragmentation of land between families.

At present, all three study sites are economically marginal and land inequality within communities is deeply entrenched. In the Dhanusha and Madhubani field sites, the primary axes of inequality is between the larger land owning farmers from the upper and middle castes and a large class of landless labourers, marginal farmers and tenants at the base of the agrarian structure. In Dhanusha, the largest owner cultivators with more than 2 hectares represent only 9% of the total sample (see Table 2), yet they own 31% of the cultivated land. Two thirds of this group are from the middle castes.

In recent years the landholdings of the larger landlords have been in decline in Dhanusha due to their out-migration, although the same cannot be said for Madhubani over the border in Bihar. In Madhubani the holdings are particularly skewed. Farmers with more than 2ha constitute just 2% of the sample yet they own 33% of the land, and 71% are from the upper Brahmin caste. A number of these farmers have land holdings of more than 10ha, and they maintain considerable economic, political and ideological power over the marginal and tenant farmer majority. Qualitative information from dialogues with farmers suggested that many of those with more than 2ha are the traditional landlords who inherited their estates from their forefathers who were part of the feudal tax collection bureaucracy. For many, family members have professional salaried employment, often in the bureaucracy – which in both Nepal and Bihar has long been dominated by landed groups, while for some others, agriculture still remains the dominant profession. These landlords are engaged in money lending to poorer farmers, with interest as an additional source of income.

Table 1: Land ownership in study villages

District	% part tenants	% pure tenants	% landless labourers	% 'small' owner cultivators with >0.5 hectare	% 'medium' owner cultivators with 0.5-2 ha	% 'large' owner cultivators with <2 ha	Local non cultivator with land
Madhubani	22.81	13.45	23.39	16.37	9.36	2.34	12.28
Dhanusha	23.31	3.01	15.04	25.56	20.30	9.02	3.76
Morang	22.76	16.26	30.08	12.20	13.01	1.63	4.07

Source: survey by author (2013)

Of particular significance in both regions is the large number of households who are completely landless. Landless labourers represent 23% of the sample in Madhubani and 15% in Dhanusha, while tenant farmers without any land of their own represent 13% and 3% respectively. Households move in and out of tenancy and landless labour depending on the availability of land and immediate household needs, meaning that the lines between these two groups are blurred. At the same time, an even larger number of households own small plots of land (usually less than 0.2ha) while also renting land. These part-tenants represent 22% of the sample in Madhubani and 23% in Dhanusha.

In Morang, the large local land owning class is smaller and less powerful, with less than 2% of sampled households owning more than 2 hectares of land (see Table 2). However, a group which is not included in the sample (as they do not cultivate) is a powerful class of *absentee* landlords with vast estates. Many of these landlords are descendants of the feudal functionaries who were given jungle land grants under Rana rule in the 19th century, whereby land was cleared, and indigenous forest dwelling communities were subjugated as tenants and labourers. As a result, landlessness is even higher in this region, with 30% of respondents being landless labourers, 16% as tenants, and 23% as part tenants. 69% of tenants and labourers are from *Dalit* communities and three traditionally marginalised indigenous groups the *Bantar*, *Rajbanshi*, and *Jhagar*.

[table 1]

Given their significant position amongst cultivating households, the group for whom this paper will focus on is tenant farmers. Exploitative sharecropping arrangements remain the most prominent form of surplus appropriation for tenants and part tenants. In most cases, farmers must surrender half of the crop to the landlord. The net surplus appropriated is even higher when one considers that tenants also cover most of the input costs. An earlier study (Sugden

and Gurung, 2012) in the same region found that their overall productivity was also lower than land owning farmers due both to the limited saleable surplus left over after paying rent, which limits the opportunity for investment in improved inputs. Furthermore, sharecropping tenants face incentive constraints due to the fact that for each unit of investment, the land owner retains half (Sugden and Gurung, 2012). Land owners were found to show very limited interest in encouraging improved investment by tenants, particularly in Morang, where many were absentee, only visiting the land each season to collect the rent.

The weak economic position of tenants also makes them particularly vulnerable to other exploitative relations such as usury. There are three primary reasons that farmers take loans – the first is to pay for fertilizer or seeds before planting. The second is to meet short term consumption needs, and the third is to meet large one off expenses such as marriages or payments to a middleman to facilitate migration of a family member. Indebtedness is particularly high in Dhanusha, where many farmers took loans to fund overseas migration. The survey for example revealed that tenants and part-tenants in Dhaunusha owed on average NPRs 121,650 (\$1200) each to private lenders. Interest rates are exorbitant, varying from 36% to 50% at the time of research.

3.2 Agrarian stress and adaptation

Over recent years, there has been a strong perception amongst respondents that the risks of agriculture have increased, due to climatic and non-climatic pressures (Sugden et al., 2014a). Climatic changes farmers have observed include an increase in extended dry spells and late monsoons, more frequent extreme precipitation events such as floods, greater winter chilling and increased temperatures in the summer. While this has been acknowledged in the literature from the region (Practical Action, 2009, Bartlett et al., 2010, Sharma, 2009), there are also non-climatic pressures which are equally significant, and linked to external economic forces. These include the spiralling cost of inputs, such as fertilizer, and limited access to quality seeds and pesticides. For example, in Nepal, the price for diesel increased by 352% between 1995/96 and 2009/10 (Pant, 2011) while the price for DAP fertilizer has risen from Rs18 (\$0.18) in 1996/7 to Rs50 (\$0.5) in 2013/14 (Bhandari et al., 2015).

Due to the rising cost of living, marginal farmers and landless households, once partially dependent on agricultural labour, are no longer able to subsist on previous wage rate, driving them to seek work outside of the sector. While there was a widespread and overwhelming perception amongst farmers was that there was ‘no future’ in agriculture, and that over the last decade or two, the odds have been stacked against them in every stage of the production and marketing process, it is also clear that the capacity to adapt to stress is intricately connected to one’s position in the agrarian structure. In this context, tenant farmers are particularly vulnerable.

For large farmers, a primary adaptation strategy is to invest in technology to improve per hectare productivity, and reduce dependence on unreliable rainfall. The limited state extension services mean that investment is primarily in high value, yet well-established heavy machinery. These include labour saving technologies such as threshers and tractors, which can subsequently be rented out to more marginal farmers, offering an additional source of income. The most important asset however, is electric or diesel pumping equipment to extract ground or surface water, and the installation of shallow tube wells. While this cannot protect farmers from the risks of floods, rising temperatures and increases in already expensive labour and diesel costs, it is crucial for them to limit the effect of droughts or late monsoons by providing water 'on-demand'.

For marginal farmers, and in particular, tenants, the range of adaptation options is far more limited – reminding one that vulnerability is deeply embedded in social structures. Their marginal holdings and surplus appropriation through rent and usury mean they are not only more vulnerable in the first place to economic and climate stress on a day by day basis, but the available cash to invest in irrigation is also far more limited. Many tenants, after giving up a portion of their harvest as rent, are not even meeting their subsistence needs on their land. In this context, the likelihood of them having sufficient capital to invest in a tube well or pumping equipment is extremely limited. Table 3 shows that most tube wells in Dhanusha and Madhubani are owned by medium and large owner cultivators, and none are owned by tenants or part tenants. Similarly, most pump set owners in Madhubani and Morang are larger owner cultivators.

[Table2]

[Figure 1]

[Figure 2]

In the case that cash is made available for tenants through loans or other sources such as remittances, the constraints to investment are amplified for tenants who do not have ownership rights to their land. Tenants have no incentives to bore a well on land which does not belong to them and could be taken back by the landlord at any time. Although those classified in Table 3 as 'part tenants' also have a plot of 'owned' land, these plots are generally very small, at less than 0.2 ha, and the private plots are often far from the larger rented plots they seek to irrigate.

There are several government schemes which provide subsidised access to groundwater in Nepal. However, tenants without land ownership face considerable constraints in benefiting from these schemes. The government provides a 100% subsidy to user groups for five shallow tubewells for each 12.5 ha of land (up to 70 ft). Each farmer in the group however, must be able

to provide papers proving they own land or have tenancy rights, and must possess a citizenship card and a recommendation from the VDC office. However, the vast majority of tenant farmers in both Nepal sites rent land through verbal agreement and official tenancy papers were virtually unheard of in the community. Landlords can also submit documents, but they often have limited interest in investing themselves, especially if they are absentee and residing in urban areas, as is common in Morang.

In this context, the remaining option for tenant farmers to access water and adapt to climate stress, is to rent pump sets and tube wells belonging to richer farmers through an informal groundwater market. Figure 1 and Figure 2 show that a significant percentage of respondents from all farmer categories who don't own their own equipment rent it. This is considerably more expensive than operating one's own pump and well, as the hourly fee includes not only the operating cost but a significant 'rent' for the owner of the infrastructure and equipment. These rents are also driven up by local monopolies, particularly if there are only a few pump set or tubewell owners in a village (see Wilson, 2002), not to mention rising diesel prices.

Table 2: % households with tube well

Farmer category	Morang	Dhanusha	Madhubani
part tenant	0	7	3
pure tenant	0	0	0
Small owner cultivator (<0.5)	6	0	0
Medium owner cultivator (0.5-2)	0	32	12
Large owner cultivator (>2)	NA*	17	50

Source: survey by author (2013)

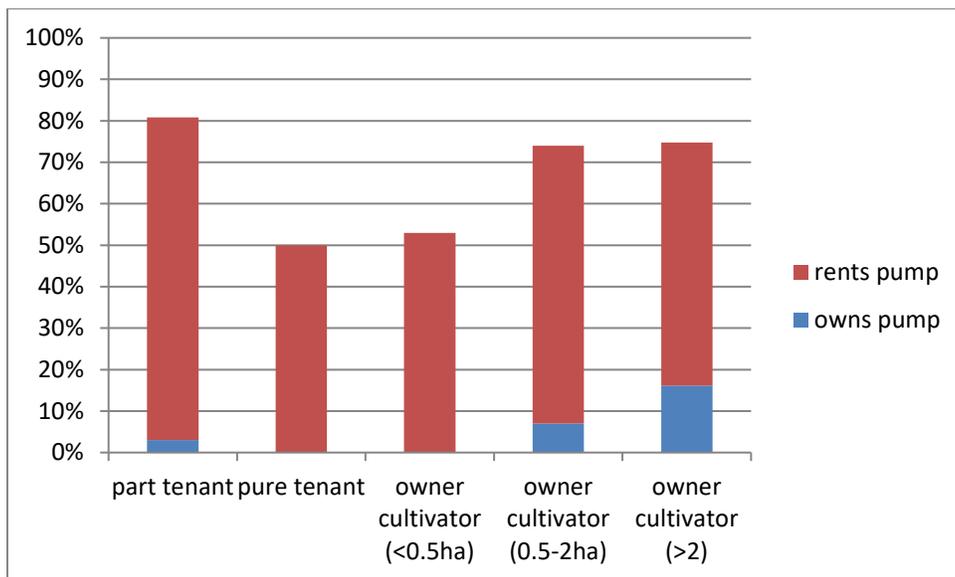
* The number of large owned cultivators in Morang is too small to make any concrete conclusions

Although even the poorest tenants must rent this irrigation equipment to meet their grain needs, it is this group that faces the greatest economic pressure, particularly when rent absorbs a large portion of the surplus. As a result, renting pumps and tube wells, while a necessary 'adaptation' strategy, puts considerable pressure on the already insecure livelihoods of tenants. This is made worse when one considers that while tenants are surrendering a significant portion of the harvest as rent, there were no reported instance in interviews of land owners contributing to the costs of irrigation. If any cost sharing is present, it is usually for seeds or fertiliser. In this context, the groundwater which is used is often quite limited. The survey for

instance, showed that over the last year in Dhanusha district of Nepal, only 9% of tenants and part tenants grew wheat, a crop dependent upon plentiful pump irrigation, as opposed to 26% of medium and large owner cultivators. In India’s Madhubani district, this stood at 52% and 75% respectively.

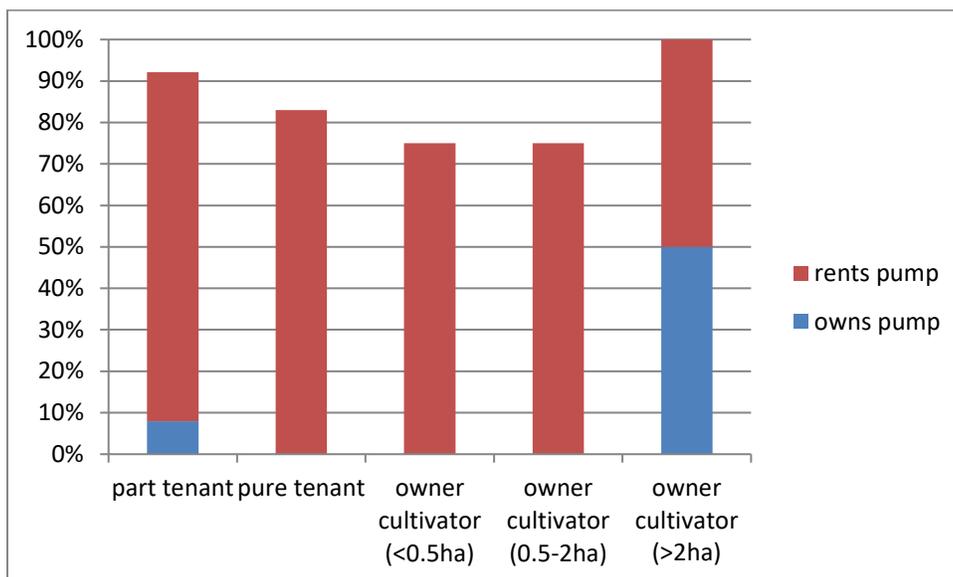
Given these constraints, it is easy to see why food security becomes a critical issue for tenants. Yields are low due to climate stress, reduced incentives and limited capacity to invest in irrigation and other inputs. Few tenants reported that they could meet their grain needs off the land alone, and most had to also purchase staples from the market. Managing cash needs for buying grain is itself increasingly difficult when tenants have to pay high fees for irrigation, not to mention rising costs of living. It is for this reason, that wage labour is increasingly important to supplement these fragile livelihoods.

Figure 1: Ownership and use of pumping equipment in Dhanusha



Source: survey by author (2013)

Figure 2: Ownership and use of pumping equipment in Madhubani



Source: survey by author (2013)

In light of the limited labouring opportunities locally at a time of rising costs, migrant labour is increasingly the norm for tenant farmers. This includes labour to Indian urban centres such as Delhi, as well as the longer term migration of farmers to the Gulf economies and Malaysia, a pattern particularly well established in Nepal. Migration itself nevertheless, only sometimes offers opportunities for upward mobility, and past research by the team found that wages and conditions overseas were often far below what migrants were led to believe, while significant loans taken to facilitate migration, put further economic strain on already fragile livelihoods (Sugden et al., 2014a).

An outcome of this demographic change is that women are increasingly the custodians of the land. While this has offered women some opportunities in terms of greater control over cash, male out-migration can also lead to increased vulnerability. Female farmers from tenant households are particularly vulnerable in this context, and face an increased workload, as well as economic and social insecurity. Social pressures in a highly patriarchal social formation are limiting women's capacity to take on formerly 'male' roles such as negotiating with land owners to access irrigation or rent equipment – tasks which are essential for tenants without their own equipment. With regards to irrigation for example, women noted difficulties in approaching land owning farmers in their homes to rent equipment, and some complained of being overcharged for water. The constraints for women in accessing irrigation and the high workload in the absence of males, combined with the limited returns after paying rent, often result in tenants leaving the land fallow during the dry months. The family members who stay behind are left dependent upon what is left from the monsoon crop to subsist, while also buying food

with the money sent back by migrants. The sporadic nature of remittances however, make stay behind populations particularly vulnerable, particularly if there is a failed monsoon harvest (Sugden et al., 2014a).

3.3 The outlook for tenants

There have been some changes in the agrarian system in recent years. Many landlords have moved to urban centres, and with this, farmers' dependence on a single land owner has declined, bringing with it a breakdown in the ideological ties which once characterised rural semi-feudalism. Nevertheless, the actual distribution of land remains the same, and data suggests that inequality may even be increasing. The Nepal Sample Census of Agriculture for the Eastern and Central Tarai for example, shows that between 1995/6 and 2010/11 surveys, the percentage of landless households has increased from 16.2% to 27.1%, with the proportion of tenants increasing from 16.3% to 19.8% (Central Bureau of Statistics, 2011). Similarly, national sample survey data from Bihar notes that the proportion of households with less than 1ha has increased from 28.58% in 1992 to 42.07% in 2003 (NSSO, 2006).

In the context of continued out-migration though, a critical question is whether new economic opportunities outside can undermine landlord-tenant relations. Farmers however noted that migrant wages are rarely sufficient to support a family. In this context, they still depend on sharecropping and even consumption loans to meet part of their subsistence needs. The primary change is that tenant farming is increasingly the domain of women, whose husbands are working outside.

While it was usually possible for tenants to find land to rent, their capacity to bargain with landlords remains limited, and demand for tenancy is still high enough for there to be no downward pressure on rents. In Nanour village of Madhubani, it was reported that land owners would rather leave land fallow than accept less than 50% rent, in the fear that other farmers may follow in demanding a lower rent. Farmers themselves reported that they are afraid to challenge the landlords, as they could just replace them with a new tenant. With persuasion and cultivation of a good relationship with landlords, the only concessions landlords would give would be to contribute to fertilizer costs. This had reportedly increased in Nepal recent years due to migrant induced labour shortages. However, labour shortages had by no means reached a point whereby meaningful negotiation over rents and input contributions could be made – and landlords would never contribute to the much more costly investment in tubewell irrigation, essential in the context of climate stress.

4. Part 2: Moving forward through a group approach to farming

With continued demand for tenancy, the perpetuation of a low wage migration economy, and agrarian stress, it appears that sharecropping and other forms of tenancy are unlikely to be

significantly undermined in the near future. Radical redistributive land reforms would certainly play a critical role in undermining landlordism. However, this appears unlikely so long as landed interests remain entrenched in the bureaucracy and the kind of grassroots mobilisation which made reforms possible in 1970s West Bengal (see Banerjee et al., 2002) appear overly optimistic in the case of Bihar and Nepal.

However, the increased political awareness of the marginal farmer, tenant and labourer class, combined with the reduced dependence on single landlords, provides a valuable opportunity for bottom up mobilisation. One potential form of mobilisation amongst landless and poor farmers is the pooling of land, labour and resources for improved political power and increased productivity – the small scale collectivisation of agriculture. Collective farming has long been dismissed as irrelevant in the post-Soviet era, however, in an important article, Agarwal (2010) makes a compelling case for a reinvented group approach to farming which can overcome contemporary agrarian stresses such as feminisation of agriculture, diminishing plot sizes and landlessness. This approach would move beyond just taking a group approaches to purchasing inputs, securing credit and marketing – the model of most contemporary ‘cooperatives’ – but would also involve collective pooling of land, capital, and even labour through jointly leasing fields, or consolidating one’s private plots within a group (Agarwal, 2014)

However, what is critical is that the mistakes of past endeavours are not repeated. As noted by Lampland (2002), what was problematic during the socialist era was not collective production per se, but the way in which members of the cooperatives were restricted politically. In the context of collectivisation in the Soviet bloc, as well as experiments in Tanzania, Ethiopia and Latin America, Agarwal (2010) notes how productivity stagnated and incentives were low. This was primarily due to their size and top down nature, the limited participation of producers in planning (particularly for women) and the fact that participation was often not voluntary. The few successful collectives from this period were those which were small in scale, with high solidarity and social affinity amongst participants, and where participation in decision making was present, resulting in many post-socialist collectives surviving.

Agarwal (2010) thus proposes a new model of collective production which is voluntary, includes small groups of between 10 and 20 households who are socio-economically homogenous. Decision making must also be participatory, benefits must be distributed equally, and there should be rules and penalties in place for non-performers. This echoes a study of conventional marketing, service and credit cooperatives in Africa and the former Soviet Union by Couture et al. (2002). The study notes how success hinges on meeting the principles of genuine cooperative development identified by the Cooperative Alliance in 1995. These include voluntary membership, collective participation in decision making, democratic control by members, and distribution of surpluses. Couture et al. (2002) also notes the importance of

members' ownership of capital, and the continuous development of human resources through skill development activities. In several parts of South Asia today, particularly in South India, a number of NGOs, community groups and government institutions, have already set up successful agricultural collectives which meet these criteria. They generally consist of small groups sharing a single tract of land, jointly investing in inputs, and sharing labour (Agarwal, 2010, Friedman-Rudovsky, 2014, Landesa, 2013). Initiatives in the past have been generally targeted at women, given the importance of the groups for gender empowerment, and a stronger culture of collective action amongst rural women (Agarwal, 2010).

With regards to the case study sites in Nepal and Bihar, there are a number of advantages of collective pooling of land, labour and capital. Firstly, in the context of a stratified agrarian structure, collectives have the potential for significant productivity gains which could boost the income and enhance the food security for marginal and tenant farmers. With reference to the Deccan Development Society, which has set up women led collectives in Andhra Pradesh of India (now Telengana), productivity was found to be 20% higher for collectives when compared to similar sized private farms (Agarwal, 2010). The reasons for potential productivity gains include the capacity of farmers to make large scale investments and share risk (Agarwal, 2010, Friedman-Rudovsky, 2014), something increasingly important in the context of some of the climatic and non-climatic stresses outlined above.

A group can more easily pull together capital for investment in agricultural equipment such as tractors to deal with labour scarcity, and most importantly, in irrigation equipment to build resilience to droughts. This can of course, also be achieved through ordinary marketing or input supply cooperatives whereby an investment is shared amongst multiple households. However, by collectively pooling land as well, the group would have the advantage of operating a contiguous plot. This would allow farmers to make more effective use of tube wells and pump sets. Interviews and focus groups in the field sites revealed that rented and owned land parcels are often scattered across multiple locations – and this was a considerable barrier to irrigation expansion and mechanisation. In the case of Dhanusha, where there are a number of groundwater user groups, marginal and tenant farmers who have joined these institutions often have to share equipment with larger land owners whose fields are in the command area. Previous research has found frequent instances of elite capture due to unequal power relations within these user groups (Sugden, 2014). If the collective can share the capital to buy their own pump set and tubewell, members would no longer need to compete for water with their richer counterparts in existing groups, nor do they need to depend on arbitrarily priced pump/tubewell rental markets to access irrigation.

A second benefit of collectives is that once a farmer group has been created, it can be mobilised for other group activities such as credit provision and training, ensuring that the land is cultivated in the most efficient way possible. In interviews, a key problem of many of the government rural development schemes in Madhubani for example, was that they were out of reach to landless farmers who cannot furnish land ownership certificates or similar documentation. However, field visits to the collective set up by Pragati Grameen Vikas Samiti (PGVS) in Sahar of Bihar's Bhojpur district, which includes several groups farming a one bigha (0.25ha) area, and demonstrated how the farmer groups were able to register with the district Agriculture Technology Management Association (ATMA) office. This provided them enhanced access to agricultural services and subsidies. Similarly, the state run programme, Indira Kranthi Patham in India's then Andhra Pradesh state, provided 5 acres of land for 10 farmers in Medak district to cultivate rice and vegetables. Women were also provided with loans to pay their share of the rent and inputs, at low interest, from the collective itself. The groups also took part in training in the SRI² method of rice cultivation, mulching and pest management (Landesa, 2013). Another collective set up by Kudumbashree (KDS) Mission in Kerala developed strong linkages with the local units of governance (Gram Panchayats), particularly with the agricultural extension office which supported the group in testing the soil while offering guidance in cropping patterns (Landesa, 2013). Agarwal (2010) also points out how even if not all members of collectives have acquired a particular set of skills, the group approach ensures that each member pools his/her own capacity and knowledge, maximising the benefits for all.

4.1 Collective leasing as a short term solution for the Eastern Gangetic Plains

The question in the context of the Eastern Gangetic Plains case study, is how to provide such farmer groups with access to land to collectively cultivate in a region where land scarcity and competition is so high? The long term solution can only lie in land reforms and meaningful enforcement of ceilings, which could break up the feudal estates of absentee and local landlords, freeing up land for farmer groups to access through state led redistribution or a joint purchase. However, a short term and pragmatic solution which is proposed in this paper is 'collective leasing', whereby a group of tenant households jointly rents a large plot of land from a land owner or public institution on a fixed rent basis, and shares investments in irrigation and technology. Collective leases are the basis of a number of small scale agricultural collectives oriented to poor households (particularly women) across India, including the Bihar and Kerala examples above (Agarwal, 2010, Landesa, 2013), and it remains a tried and tested model.

² SRI (System of Rice Intensification) is an improved method of rice cultivation which reduces input use and maximizes yields through increasing the spacing between seedlings.

There are a number of added advantages of collective leasing. Not only does it offer tenants economies of scale and the opportunity to operate a contiguous plot, as noted above, collective leasing through farmer groups can also involve landless labourer households, who may have been unable to secure an individual tenancy. It is also suitable for regions such as Bihar and the Nepal Tarai where there is little uncultivated or abandoned land. Furthermore, it is particularly beneficial to women, who sometimes lack access to funds to operate in land rental markets, and the collective approach itself can enhance women's social empowerment and control over resources (Agarwal, 2010, Friedman-Rudovsky, 2014). This is all the more important to reduce the vulnerability of women farmers in the context of male out-migration and the feminisation of agriculture.

Collective leasing also transforms the traditionally unequal relationship between tenants and land owners. The improved productivity could potentially win the support of landlords, while providing them an incentive to invest capital on their land or encourage their tenants to improve land use or management. Furthermore, a collective approach can increase the bargaining power of tenants when negotiating rental contracts, with a move away from exploitative sharecropping arrangements to fixed cash rent contracts, where the incentives for increased productivity and opportunities for income generation are a lot higher (Sugden and Gurung, 2012). The collective may also be able to negotiate with the landlord for other services, such provision of the necessary documents for a government subsidised tube well, which as noted above, are often out of reach for tenants without landlord support. In the long term, a collective lease may allow tenants to more easily claim their legal rights to tenure security should a meaningful programme of land reform be implemented in the future. It may also be a precursor to a group collectively purchasing a plot (Agarwal, 2010).

An example of how collective leasing has increased the bargaining power of users was present in the research field site in Madhubani itself, with respect to fishers' collectives. The local NGO Sakhi, was able to mobilise a collective of women from the Mallah fishing caste, to have joint rights to public ponds from the fisheries department for a set of villages. The fishers operated as a collective sharing labour and profit. However, the local government dissolved these rights in 2012 in favour of competitive bidding for all ponds. Nevertheless, the women's group had become politically powerful and respected locally, and even through a competitive process they were able to secure rights to the ponds on a seven year lease at an acceptable rent, and continue the work of the collective.

4.2 Unanswered questions and an agenda for further research

Collective leasing has considerable potential to overcome tenure related constraints to improved land management and productivity in the Eastern Gangetic Plains and other regions

with a similar social structure, yet considerable research is still required to identify the most appropriate model for up-scaling. A first question relates to whether farmers should pool labour as well as land and capital, and if so, how labour contributions should be monitored. While in the strictest sense, an agricultural collective should pool labour, land and capital, in theory farmers could only pool the latter two, and farm independent plots on collectively leased land. A small number of local NGOs with the support of international organisations such as Plan Nepal have piloted this approach in Morang district of Nepal, the field site for this study with the highest level of landlord-tenant relations. In Bhaudaha and Katahari VDCs, the NGO had rented some land from local landlords, then distributed small plots of a few kattha (1 kattha = 0.5ha) each to a farmer group, usually composed of landless households. They were usually oriented to the production of a particular crop, normally vegetables. Although plots were cultivated independently, the group managed the shallow tubewell and pump, paid for inputs, and marketed their produce collectively.

The advantage of pooling labour however, is that if a household member cannot work due to illness or a competing demand on their time, other members of the group can take their place (Agarwal, 2010). Labour pooling also reduces competition between farms for scarce labour during peak periods, and is particularly advantageous for marginal farmers who depend usually on family labour. One of the primary advantages raised by farmers in the PGVS collectives that were visited in Bhojpur, Bihar, was that they could carry out key agricultural activities on time. For a family farm, due to labour non-availability (e.g. farmers may sometimes need to hire in workers for key tasks), workers are sometimes not available for a key stage of the production cycle— and cultivation becomes delayed. On a collective farm though, everyone works in a group, so accessing labour for tasks such as transplantation is never a problem. It can even be taken one step further by pooling the labour of more than one collective at a time of particularly high labour demand. This was observed in farmer collectives in Kerela, whereby two adjacent groups which were unable to complete a set of agricultural tasks in the required time, agreed to share labour, whereby they would give a set number of days to each respective collective (Landesa, 2013).

For any labour pooling arrangement however, there needs to be measures in place to prevent unequal contributions of labour by group members (Agarwal, 2010). A system of penalties could be present, or farmers could provide money to hire another labourer if they were unable to work on a particular day. A similar system has been observed in hilly regions of Nepal for irrigation canal maintenance where households are expected to pool labour and compensate the committee if they cannot contribute (Sugden et al., 2014b).

An example of how labour is managed in a collective was observed in fieldwork on a farmer group in Kochabari village in Cooch Behar, West Bengal, India, set up by National Bank for Agriculture and Rural Development. This group operated as a collective in the true sense, in that it leased land while also pooling inputs and labour. This would however, only take place on a seasonal basis, normally for the rice harvest. A group of 10-12 households would take a plot of land on seasonal lease from another farmer, usually paying 160 – 200 kg paddy per *bigha* (0.14 ha) as rent. They would then share the inputs, and labour jointly on the land, pooling money to cover the costs of tubewell irrigation. The harvest would be shared equally. There was no formal system for monitoring how much labour each household was providing, and there was a strong degree of trust. Nevertheless, if someone is unable to labour, they would compensate the group with money. Similarly, the PGVS collectives in Bihar operated on the basis of trust alone – and peer pressure was enough to ensure timely and fair contributions by members.

Labour pooling remains potentially one of the most challenging aspects of collectives. It is important to note however, that even when land is not operated collectively, collective pooling of labour is still present in some parts of the region, particularly in Nepal, and these ties of trust may offer a strong foundation on which to set up new collectives. In the Nepali hills for example, and amongst hill settlers in the plains study sites, a system known as *parma* exists, whereby labour is shared during the peak paddy transplantation season. A groups of farmers cultivates one household's land, then move on to the next, until the paddy transplantation is finished. In the Terai districts of Nepal, the labour exchange system has died out, although in some areas a de facto exchange exists through the market, whereby households labour on each others' land but are paid for each day in cash and grain, to the extent that labour buying and selling by a household may equalise each other out by the end of the season.

A final challenge, is how to ensure the support of landlords, and how to ensure continuity in the life of the collectives. In the interviews with tenants, particularly in Morang and Dhanusha, it was reportedly widespread for landlords to change their tenants every few years. This was both due to the informal, oral nature of contracts, but was also related to a fear that if a farmer stays too long, he or she may try to 'claim' ownership of the land using pre-existing tenancy laws. The same risks may apply for collective leased holdings, whereby a landlord may decide to give the land back to an individual tenant after some time, resulting in the loss of the collective's joint investment. It has been also pointed out that if the quality of the land has increased as a result of the group's investment, landlords may decide to take back the land to use for private cultivation.

The critical challenge in this context, is to achieve land owner support through careful economic planning. Long term support of land owners depends on a fixed rent which is paid in cash being higher in value than the normal in-kind rent received under standard sharecropping arrangements whereby landlords keep 50% of the crop. As noted earlier, collectives would open up opportunities for enhanced use of irrigation and productivity boosting investments, so from the tenants' perspective (due to increased productivity), it is anticipated that the proportion of their total crop being appropriated as rent would be significantly less. This in many ways would represent on a micro scale, the historical process outlined by Marx (1967) whereby farmers shift from pre-capitalist to capitalist ground rent. Under this process, increased production or improved market conditions reduces the share of the total output consumed by rent, rendering farming profitable for tenants.

One land owner who had given out his land to the collective in Morang of Nepal was interviewed. He received Rs 6 – 800 (\$6-8) per month for each 1.5 katha (0.05 ha) in rent from each group member, who would pay the rent using the income from vegetable production. This is roughly equivalent to what would have been received through sharecropping or fixed in-kind rents³. The actual project which had set up the collective had pulled out now, but the landlord continued to lease out the land, and he offered flexibility in the rent in the event of a bad harvest. The landlord also noted that the land was too far from his main fields to have been of significant utility, suggesting that land of limited use to landlords is more likely to be conducive for long term leasing. In the study from South India by Landesa (2013) a large portion of the land cultivated by collectives was land which was not presently being cultivated by land owners.

A final consideration, is that the choice of technologies should be such that they can easily be moved to a new leased plot if the landlord does take back the holding. This can include for example, using portable pump sets for irrigation, limiting the fixed investments on the land such as construction of channels, and where possible making use of existing tube wells rather than installing new ones.

³ Fixed in-kind rent for 1.5 katha of land would normally be around 1.5 maund (60 kg) of paddy, which at the time of research would have been valued at approximately Rs 900 (\$9). Sharecropping rents are roughly similar, depending on the yield of that particular year.

5. Conclusion

Land tenure remains one of the most critical issues facing agriculture in the Eastern Gangetic Plains, and in the context of climatic and economic stress, tenant farmers remain one of the most vulnerable communities in the region. Persisting landlordism in North Bihar and Southern Nepal has been shown to reduce investment incentives amongst tenants and constrain their capacity to adapt to climate change through investments in groundwater irrigation infrastructure. The current trajectory of change sees a significant rise in male out-migration, with tenant farmers often leaving land fallow during the dry season.

While farmers with small and marginal owner cultivated holdings also face significant constraints to agricultural intensification, the barriers are particularly acute for tenants, who form between a third and two thirds of the farming population. In this context, the paper has proposed collective leasing as a significant opportunity for tenants to increase productivity, enhance their bargaining power, and overcome scale and tenure related constraints to investment in irrigation and technology. In spite of failed efforts at collective agriculture in past decades, the paper has reviewed a range of small scale and democratic collectives, run by close knit groups of farmers.

The paradox however, is that the collective leasing of land itself depends on the support of the same landlord-tenant relations which it seeks to undermine. The model therefore can only flourish following a meaningful redistribution of land. Nevertheless, in the long term, the group solidarity and mobilisation through group lease collectives could allow tenants to more easily claim their legal rights to tenure security should a meaningful programme of land reform be implemented in the future. At the same time, it could pave the way for mobilisation at a national and regional level via larger political movements for both land reforms themselves, as well as more equitable trade regimes and policies for farmers. Furthermore, to counter criticisms of land reform as impeding dynamism in agriculture (Dyer, 2004), collectives could provide a model for a more productive and dynamic post reform agriculture – one based on a radical new systems of socialistic production.

This paper has not intended to present an idealised framework for collective leasing. Instead, it has presented an agenda for research into an often overlooked or dismissed system of production. Considerable work is still to be done to test, tailor and develop multiple models of collective production suitable to the diverse and complex social formation of the Eastern Gangetic Plains, and to meet the needs of South Asia's most vulnerable farmers.

6. References

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