

Irrigation and Tenancy in Nepali Agriculture:

A Rapid Appraisal in three districts

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Abstract

An assessment of the leasehold practices in the hill, inner terai and terai of Nepal was carried out to understand its nature and extent. Due to differences in incidence of poverty, the extent of landlessness, farm sizes, social structure and physical facilities, various forms of leasehold practices are in practice in these areas. This study highlights the important factors that conditions the leasehold practices in these areas and suggest policy changes to facilitate the leasehold practice for the benefit of leaseholder and lessee.

1. Introduction

Agriculture is the mainstay of the Nepalese economy, providing livelihood for more than 80 percent of the population. Although the share of agriculture in total GDP has been declining over the years due to lack of use of necessary agricultural inputs and poor irrigation facilities, it is still the largest sector of the economy, accounting for 38 percent of GDP in 2006 (MOF,2007). In comparison to many other countries of Asia, the structure of the Nepalese economy has not changed much - the share of agriculture in total GDP fell by only 6 percent over a period of about 15 years from 1990-92 to in 2003-05. Moreover, industrial activities are at its infancy, mostly concentrated in the terai along the highways and do not absorb all the work force which is unemployed and underemployed in the agricultural sector.

Nepal is divided into three major ecological regions: Mountain, Hill and Terai, which contain 35, 42 and 23 percent of total area and 7, 46 and 47 percent of total population, respectively. Growth of the Nepalese economy is determined largely by agriculture sector due to poor industrial base. Out of the total population of 25.9 million (CBS, 2005), some 80 percent reside in rural areas whose main economic base is agriculture. Due to rugged topography, only about 17 percent (2.5 million hectares) of country's total land area is suitable for agriculture; with a cropping intensity varying from one to three crops per year. In terai thirty-eight percent of the total land area is cultivated followed by hills 10 percent and mountains 2 percent. In terms of poverty incidence across the belts of Nepal, the Terai belt has the lowest poverty rate at 28 percent, compared with 33 percent in the Mountains and 35 percent in the Hills (CBS, 2005).

The farm sizes in Nepal have been declining overtime. The agricultural census of 1991/1992 reported that over a period of 30 years the agricultural holdings in the country increased to 2.74 million from 1.54 million holdings in 1961/1962. The average size of a holding in 1961/62 was 1.11 hectare. In 1991/92, the average size of a holding decreased

to 0.96 ha due to the law of inheritance (CBS, 1994:11). Thus, the cultivated land is fragmented into smallholdings and the majority of the farming population has less than one hectare. The national average shows that per hectare cultivated land will have to support 6.45 persons. For the hills, the figure is 9.5 persons. In 1991/92, the average holding size for the mountains was 0.68 ha, for the hills it was 0.77 ha while the holding size for the terai was 1.26 ha (CBS 1994). Average land holdings have however been decreasing rapidly. Analysis of data from households reveals that 48 percent of rural households owned less land in 2003/04 as compared to 1995/96. The 2003 data shows that 57 percent of households own less than 0.5 ha of land. Land and holding size is still considered important parameter in measuring poverty in Nepal. The poor themselves have identified land access as a key determinant of poverty, which is indeed not surprising in a country that is predominantly rural and where 81 percent of the population is employed in the agricultural sector. The 1999 Poverty Assessment indicates that "Asked to define what it means to be poor, the poor themselves refer first to lack of sufficient land to support their families; they see lack of sufficient food and income as consequences of the lack of land."

Table 1: Characteristics of Study Area and Leasehold Tenancy

Characteristics	Kaski		Chitwan		Bara	
	Hemja	Khudibzaar, Lekhnath-12	Ratnagar	Gitanagar	Fattehpur	Pipra Simara
Ethnicity/ % of SC	Brahmin 25%	Brahmin/ 5%	Tharu/ 14%	Brahmin/ 4%	Tharu/ 16%	Tamang/ 8%
% of marginal farmers		75	85	83	39%	37
% of landless	25	0.5	7	8	56%	50
% of irrigated area			79	80	None**	
Dominant source of irrigation	Canal	Canal	Shallow Tubewell	Canal* and STW	Some irrigation during monsoon from river	Canal, STW and DTW
% of tenants among landless	-	100	33	33	50	50
% of tenants	-	25	17	25	51	82
Types of leasehold	-	Share cropping	Share crop/ Contract	Share crop/Contract	Share crop and Hunda	Share crop, Contract (cash) and Hunda (crop)

*The canal is not functioning, as the water lifting (from river) device is not in operation. Otherwise 90% of the land would have received water.

Due to small size of holding irrigation availability plays an important role for the food security and overall livelihood of the household. Therefore, the household apply various strategies to maximize the benefit from the land and lease holding is one of them. Leasehold in the past signified the feudal characteristics of the society. However, the forms of leasehold practices have been changing over a period of time and are different from one ecological region to another. Against this background, a rapid assessment was carried out to know the extent and type of tenancy in relation to the irrigation availability in three districts Kaski, Chitwan and Bara representing hill, inner terai and terai. The information was collected through structured questionnaire and checklist with the villagers representing various segment of the population in the community. The Important characteristics of the study area and the tenancy practices are summarized in table 1.

2. Extent and drivers of tenant-farming

In addition to land acquisition through the land sales market, households have acquired land through government policies also. Nepal's Land Reform Act of 1964 in fact attempted to address landless and tenancy issue through land ownership ceilings and guaranteeing tenancy rights. Nevertheless, only 1.5 percent of total agricultural land was distributed because of widespread evasion of land ceilings. The Land Reform Act of 1964 established the right of the tenants to one fourth of the land ownership they cultivated. A 1995 amendment of the Land act provided for abolition of dual ownership of land under tenancy by physically splitting up the land between tenants and landowners. The survey data suggest however that this legislative change did not result in a large shift from tenancy to ownership, due to lack of effective implementation of the Amendment. The owner-operated constitute 83 percent of the total holdings. Likewise, 15 percent of the land were partly owned and partly rented, whereas 2 percent of the holdings were under full tenancy (CBS, 1994)¹.

This dual ownership is more prevalent in the terai than in the hills and the mountains. This is because of the absentee ownership and those having large chunk of land who have leased out land for cultivation. Further, the Land Reform Act was instrumental in the abolishment of the right of the *Jimmawals*ⁱⁱ who were the village heads and the representatives of the government for maintaining the land records and collecting land taxes beside mobilizing resources for the maintenance of the irrigation canals. The *Jimmawal* however, continued to function in some places until the cadastral survey was completed, which was implemented in phases.

Table 2 summarizes land ownership patterns across the different groups of rural households revealed through National Living Standard Survey NLSS (I and II). The survey revealed that average size of holding has declined in 2003/04 as compared to 1995/96. These data reveal that the decrease in area owned is largely due to a reduction of farm sizes among farmers in the Terai. The holdings of medium farmers declined from 1.16 ha on average to 0.92 Ha while holdings of larger farmers declined from 3.63 ha to 2.78 ha. Interestingly, while the average holdings among medium farmers in the Terai were 20 percent smaller, the area operated by this group of households declined marginally by 2 percent, indicating that these households

were renting in land. As is to be expected on average non-farm households and agricultural wage laborers owned significantly smaller amounts of land; average land ownership among wage laborers is only 0.05 ha.

Table-2: Land Ownership by Farm Size in ha

NLSS-I	Area owned	Net Operated Area	Gross Cultivated Area
Terai-Non-farm	0.25	0.03	0.05
Other-Non-farm	0.12	0.08	0.14
All Rural	0.88	0.98	1.58
NLSS-II			
Terai-Non-farm	0.26	0.04	0.10
Other-Non-farm	0.12	0.07	0.14
All Rural	0.66	0.75	1.35

Note: Net operated area is defined as area owned plus area rented in minus area rented out. As net operated area varies by season, the maximum of the area operated in either season is used as the annual net operated area. Gross cultivated area is the sum of area cultivated in the wet and dry seasons.

Even the largest holdings are of relatively modest size (only 0.5 percent of households own more than 6 ha), and are moreover rapidly decreasing. Indeed, average land holdings have decreased by 25 percent between 1995/96 and 2003/04 (from 0.88 to 0.66 hectares). On the other hand however, the share of complete landless households has also slightly increased (15 to 16 percent). The data indeed suggested a small but significant increase in pure tenants (i.e. tenants without owned land) since 1995. Therefore, the smallholders have to resort to the leasehold farming wherever available or look for alternative employment opportunities. Once households have only mini-holdings left, further subdivision might no longer be feasible, and alternative income strategies might be pursued by some of the household members. Therefore, households with small land holdings are much more likely to have had son migrating abroad, than either the complete landless, or the landed households.

Landlessness is also one of the primary reason for tenant farming. Landlessness in terai is more acute (18%) compared to the hills (3%). Therefore, the tenancy issue is more important to the farmers in the terai than in the hills. Because of this reason, the leasehold practice is more prominent in the terai than in the hills.

3. Determinants of Terms of Tenancy Transactions

Three types of renting are prevalent in the country, according to the agricultural census of 991/92 (CBS, 1997). Share cropping (47%) is the most common form of renting followed by fixed quantity of produce (30%) and mortgage arrangement (18%). The agricultural census notes that land is used as capital for taking loans to meet the expenses for emergency and social events, as the informal sector provides nearly 80 percent of the credit in the rural areas. Therefore, mortgage arrangement is the common forms of

leasing in the hills as compared to share cropping, fixed quantity of produce and contract. This is a contractual arrangement between the farmers and the lender for some period of time. In that case the farmer who lends the money does not receive interest, instead the earning from the land is the interest. In the mortgage agreement the lender keeps the produce as interest.

Share cropping is a contractual arrangement between the owner and the cultivator to cultivate the land on 50/50 share basis, in which the owner provides the land and the cultivator provides the labour. However, the owner and the cultivator share other inputs equally. The cultivator however, does not have the legal tenancy right over the land. Share cropping arrangement is practiced without signing a paper, so that the share cropper will not have any legal proof to claim tenancy right. Therefore, size of holdings is a major determinant on the tenancy practices in the hills. Recent field survey (2008) in the hills and inner terai (Kaski and Chitwan) has revealed the emergence of contract farming, in which the land is leased on contract for specified period on an annual rental basis. Share cropping is more common in the *terai* than in the hills, where wage labour is preferred for farming. This is because renting out land is a very recent (10-15 years) phenomenon, as the owner themselves used to be the cultivator. This is largely to avoid the claim of tenancy right by the share cropper.

The availability of irrigation is a major factor for determining the terms of tenancy. Data published by the Ministry of Agriculture and Co-operative (2006) shows that 934,989 ha, which is only one-third of cultivated land or only about 53 percent of irrigable land is irrigated. Because of difficult topography, only about 10 percent of cultivated land in mountain and hill districts is irrigated, while 56 percent of cultivated land is irrigated in Terai. Of the total irrigated land, only about 40 percent is year round irrigated. This has limited the number of crops grown per annum and their productivity.

There is a distinct difference across the regions in leasehold practices. The leasehold practice in the hills has declined over a period of time. For example, in Hemja, the upper caste used to hold large portion of land in the past and they used to lease to the small holders but the distribution of land among the siblings have resulted into fragmentation of holding. Therefore, in both the study sites in the hills, owner cultivation is in practice, in which the owner used to hire wage labourer for cultivation. The field study also indicated that the rain fed land is not for lease in the hills and inner terai, as vegetable cultivation on contract is preferred form of lease. The access to the road head and market, especially in the hills is also the important factor for land lease. The presence of large owners and absentee ownership is another important factor for the prevalence of tenancy in the rural areas. Beside, the presence of small holders and land less population in the village is also the determinants of the tenancy practices for in the village.

According to the respondents, the trend of leasehold is decreasing due mainly to land fragmentation because of family separation, due to fear of tenancy right. This has been substantiated from the national level data also, which indicates that the total holding renting land has decreased by 4% during the period 1991-2001 (CBS 2004). Lack of trust between the leaseholder and lessee whether the lessee will pay the agreed rent or not is also cited as one of the reasons for not leasing land especially in terai. In recent years, the

tendency has been not to pay the rent to the rich and absentee owner, which had made landowner scary of leasing out land. This could be attributed to the recent changes in the political system of the country, as the government is in process of forming high level land reform commission to draft new land policy in order to address the issues of land less and tenancy right.

4. Profile of Lessors and Lessees

Where there are absentee owners and those who are employed outside used to lease land. The lesse are from the same village and mostly the relatives of leaseholde. But the lesse do not have the right of tenant as stipulated in land reform act. The other types of lesse are the landless in the village, who share crop from others but the land owners' preference is for hiring on wage labour. It is reported that in recent years, the availability of the wage labourer in the hills (Hemja) is declining due to availability of alternative employment opportunities as result of rapidly growing urbanization and also the job of agriculture labourer is considered to be mean. Because of this the owner cultivators who do not have able members in the household are facing problems in farming. In Chitwan, the households who lease land are those who do not have able members in the household, lack of able member to supervise the work in the farm and find difficult to mobilise labour from outside. However, in case of terai it is mostly the absentee owner (Pipra Simara), service holder in other agencies, people in the business; households who have alternative source of income and lack of able members in the households to supervise farming are the one who lease out their land to others. Households who have small plot of land, which is not sufficient to support their family have taken up other work are also giving the land on lease.

The households who have taken land on lease are those who have come from other districts and have no land, land less in the village and entrepreneurs from outside the district, mostly from the terai who wants to make profit from cash crop cultivation. Beside, Owner with more land than one can cultivate used to give land in lease (Fattehpur). Likewise, the reasons for taking lease are lack of sufficient cultivable land of their own, households who have labour at home and entrepreneurs who want to make profit. Land less households who do not have land for farming, who have small parcel of land and tractor owner who have less land but want to use their tractor efficiently take land in lease from others.

5. Irrigation Impact on Land Rentals

Both the sites in the hills now have surface irrigation and therefore leasehold is in practice. In case of Hemja and Begnas some of the farmers have started leasehold on contract basis and that started only after the availability of irrigation water. In both the village the old earthen canal was rehabilitated by expanding the area. The contract is mainly for vegetable farming and usually for a period of five years, as the lesse would like to ensure maximum return from the investment he will make for land. The lessees are of the opinion that the return from the land is encouraging if managed for 3-5 years, because of the fertilizer and compost they use during the land preparation. Nevertheless,

the rent for the land varies between NRs. 3000-NRs. 10,000 depending on the availability (year round) and reliability (in time) of the water.

One of the major impacts of irrigation in Khudi Bazaar, Lekhnath was the in migration to the valley floor from the hills after the rehabilitation of the irrigation scheme. But in low land from the hills for agricultural activities and have started residing close to the farming. In recent years, the agricultural land is being converted to the residential purpose through plotting by the investor from outside the area, as this place is one of the preferred areas for residence due to its picturesque natural setting. This has contributed to increase in land prices and growth of urban area. This has been evidenced by the government designation of Municipality of the area. As people are fetching higher land prices than from agricultural farming, there is a fear that the agricultural land may be converted to residential purpose in the long run. The farmer suggest for policy measures to stop irrigated agriculture land being converted to residential purpose. The irrigation policy has this provision but in absence of legal enforcement, this is not effectively implemented.

In Chitwan also the leasehold does not apply to rainfed land in both the sites in inner terai (Chitwan). The Gitanagar site has 2 km length of canal for which the water is lifted from the Narayani river through pump operated by the government. However, at the time of this information collection, the canal was not in operation. Therefore, the source of irrigation is shallow tubewell in both the sites. The water table in the both the sites are between 8-20 meter in monsson and summer respectively. Land quality of most of the farm land is almost the same as the area was resettled during 1960s after clearing the forest. Therefore, there is no large variation in the rent of the land and it ranges between NRs 20,000-22000 in case of cereal crops. However, the annual rent of the land varies between NRs. 25000- 30000 in which the fruit and vegetable is cultivated. The other determinants of the rent are whether the irrigation is through canal or tubewell? The land irrigated through shallow tubewell powered by electricity commands higher rent than surface irrigation due to reliability of irrigation water. The difference in the rent between two types of irrigation is due to cost of electricity for pump operation for shallow tubewell irrigation. Likewise, in case of diesel operated pump irrigation, the rent is lower (Rs. 15000) because of high cost of diesel compared to electricity. The access to irrigation and closeness of the market are the major determinants of the rent in case of inner terai.

The agriculture in Pipra Simara, Bara is both rainfed and through tubewell whereas the irrigation in Fattehpur, Bara is done by lifting water from the river in case of land which is at height and through temporary diversion to the earthen canal. However, The river is not perennial but monsoon fed therefore, it is a rain fed irrigation. There are three diesel operated Shallow Tubewells in Fattehpur but they are seldom used due to high cost of diesel. The availability of irrigation water in both the villages is quite accessible as indicated by water table in the village which is 1 meter to 5 meters deep during the monsoon and summer respectively. There is a seasonal stream at a distance of 1 km however the water is not used for irrigation due to lack of canal in Pipra Simara.

The rent varies according to the quality of land in Fattehpur and the rent for average quality land is NRs 5000 and NRs 8000 for superior quality land for rain fed, where canal irrigation is not possible. But in case of Pipra Simara, the quality of land does not matter and the rent paid to rainfed land is NRs. 5000. Likewise, the rent paid is NRs 11000 and 16000 for average and superior quality land respectively where canal irrigation is available. Also, it came to be known that the rent for superior quality land where irrigation has to be done by lifting water from river is about the same paid to average quality land. This is because of the diesel cost involved for the operation of the pump. But it is NRs. 10,000 in Pipra Simara. The other factors that affect the rent are the price of fertilizer and its availability and price paid in hiring tractor for ploughing vis-à-vis quantity of produce and its market price. The general tendency among the farmer is to apply less fertilizer and not to use the tractor to reduce the cost because of uncertainty of canal irrigation and also the market price of produce. Other important factors that affect the rent of the land are closeness to the market, availability of agricultural inputs, mainly fertilizers and reliability of irrigation water. This is because, the possibility of vegetable farming increases the land rent to NRs. 20,000. The leasehold is for a fixed rent for a period of one year.

6. Summary and Conclusion

The assessment of the leasehold practices in relation to the availability of irrigation and its form in the hills, inner terai and terai provided insights into its nature and extent. Having feudal characteristics of landholding where higher caste and a few of them owned large chunk of the land in the past. This has perpetuated wide gaps between the rich and poor in the rural areas, which had an implication in the tenancy practices. Landlessness is another important driving force, which is at higher side in terai, for the prevalence of tenancy practices. The Land Reform Act of 1964 and its amendment tried to address the landlessness and the tenancy issues. However, it was not successful due to ineffective implementation. The situation was found to be different in the hills, inner terai and terai. The poverty is high in the hills compared to the terai, however the landlessness is high in the terai. The national level statistical data suggest that the farm sizes are becoming smaller because of the law of inheritance over a period of time.

Mainly three forms of tenancy practices were found in the studied area and they are mortgage, share crop and contract (Hunda in terai). Mortgage and share crop was the widely popular form of tenancy in the hills. However, with the separation of the family members the farm sizes have become smaller and household have become the owner cultivator. Therefore, the tenancy practices in recent years are declining. Share cropping is in practice but in an informal way. This means there is no written agreement between the leaseholder and lessee in order to avoid the tenancy right of the tenant. For the last 4-5 years, the contract farming is also coming up in the hills and inner terai for vegetable farming where the irrigation is available. But this is in a very small scale. The declining interest in agriculture among the young is becoming worrying for the farmers in the hills and inner terai due to shortage of agricultural labourer.

Share crop and Hunda are the most preferred form of leasehold in the terai, where both rainfed and irrigated farm are leased. The intensity of leasehold in terai is higher than in

the hills and inner terai. This could be largely due to the presence of landless household and absentee owners. In all the studied area, the leaseholders are the absentee owners, those having alternative employment and household having small plot of land. The lessees are the landless, those having small patches of their own land and households having large family members.

Irrigation is the major determinant in all the studied area for leasehold in terms of lessee's preference and the rent it commands. Irrigation availability found to be a must in case of contract farming in all the studied area. Electric operated shallow tubewell irrigated land is preferred by the contractor for lease than the surface and diesel operated shallow tubewell. It shows that both the availability of assured irrigation and cost effectiveness is the first priority of the lessee. Rain fed areas are not leased in the hills and terai. In case of the rain fed area in the terai, the tendency among the farmers is to avoid risk by not applying required amount of fertiliser as the return (in terms of product and its market price) is not guaranteed.

The general trend in leasehold farming in the studied area suggests that new policy changes are required to promote leasehold to address the issues related to landlessness, tenancy and to increase agricultural production and productivity. The policy should encourage consolidation of the farms, investment in assured irrigation and rights of tenants.

ⁱ Out of the total cultivated land two percent of the holdings were fully rented out i.e. owners did not cultivate any parts of the land themselves.

ⁱⁱ In some places they were called *Ditthawal* also.

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