

CHAPTER IV

DESCRIPTION OF THE STUDY AREA

This chapter addresses the current scenario of Dang district as the study area and the main features of the selected twelve Tharu community sites within Dang district. Furthermore, caste/ethnic composition, resources availability, institutions on both Dang district and selected community sites are discussed and cropping systems and food availability of Dang district are included in this chapter.

4.1 Location of the study area

Located in the Rapti zone of Mid-Western Development Region, Dang is a mixture of hill and two big valleys that constitutes Dang district. It lies between Mahabharat and Chure hills. It has two main watersheds Rapti and Babai. The most fragile Chure hill lies between two valleys namely Dang and Deukhuri.

It is between the Chauria (Siwalik in India) range to the south and the Mahabharata to the north in the inner Terai region of mid-region of western Nepal (Figure 4.1). The Churia range divides the two valleys from north to south. The southern valley is called Deukhuri surrounded by another Churia hill, the Duduwa near the border between Nepal and India. Dang district consists of Dang and Deukuri valley which is more fertile district of Rapti zone under Mid-western region of Nepal. Mid western Nepal is one of the food deficit part of the country but Dang is one of the food sufficient districts in that region of the country. It lies between 27.036° and

28.29⁰ N east latitude and 82.02⁰ and 82.05⁰ E north longitude. The total area of this district is 296,221 hectare.

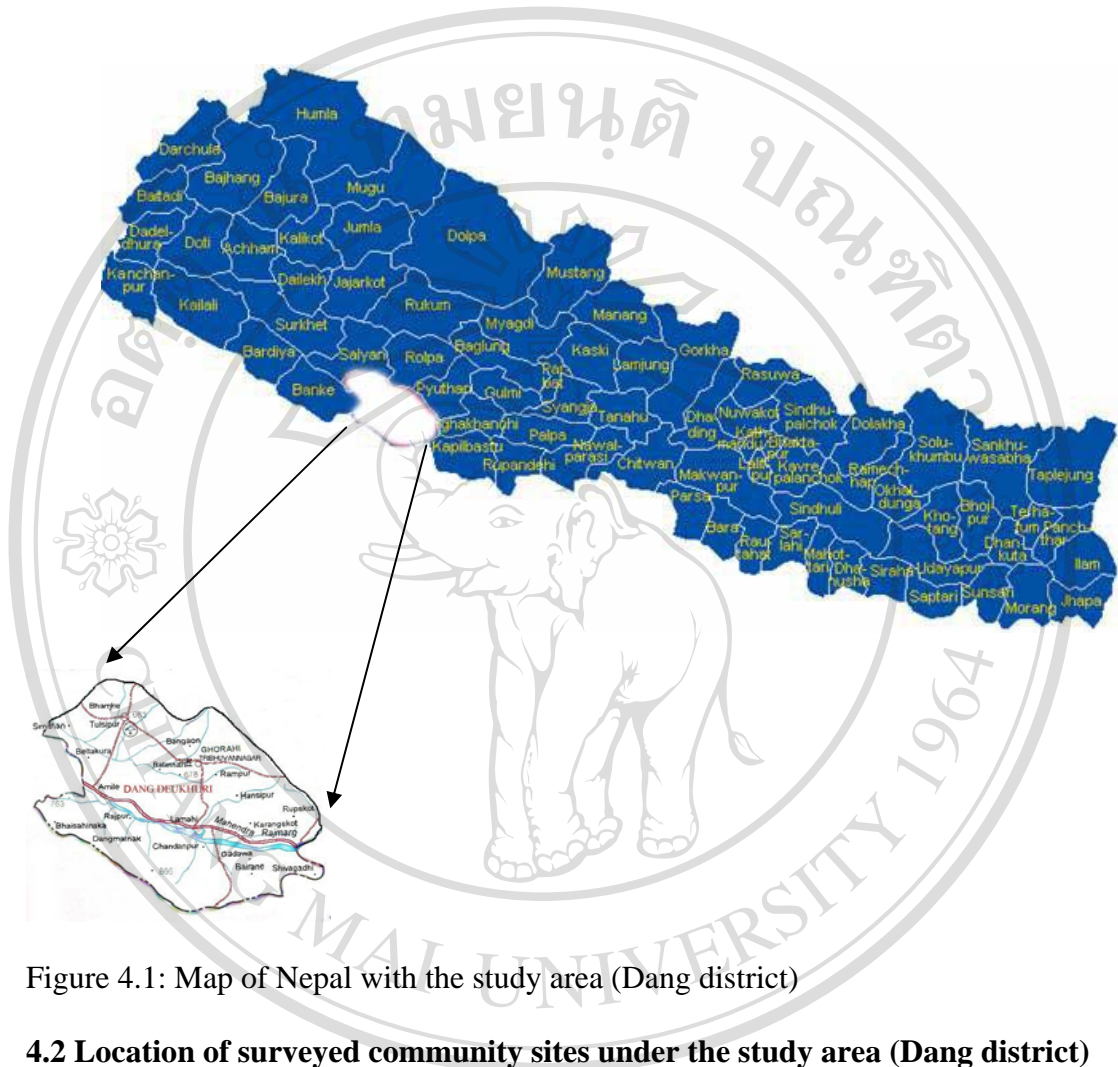


Figure 4.1: Map of Nepal with the study area (Dang district)

4.2 Location of surveyed community sites under the study area (Dang district)

The study area (Dang district) is administratively divided into 39 Village Development Committees (VDCs) and two municipalities. All VDCs and Municipality consist of different caste/ethnic groups which constitutes numerous communities. Most types of caste/ethnic group make heterogeneous caste/ethnic community but Tharu ethnic group makes separate types of community from their ethnic groups only which are spread out throughout different villages of district. The population of Tharu is about 147,176 that live in the study area which accounts for 32

per cent of total population. The study area consists of about 200 Tharu ethnic communities in where they show their unique identity than other.

This study covers twelve Tharu community sites from whole dang district where selected four Tharu community sites come under Deukhuri valley and eight Tharu community sites come under Dang valley. Twelve Tharu communities which are Satbariya, Sisaniya, Ambapur, Kachila, Syanigaun, Dubicaura, Surkedangi, Jhigne, Budha Gaun, Shreegaun, Falkapur and Motipur village were selected from the study area (Figure 4.2).

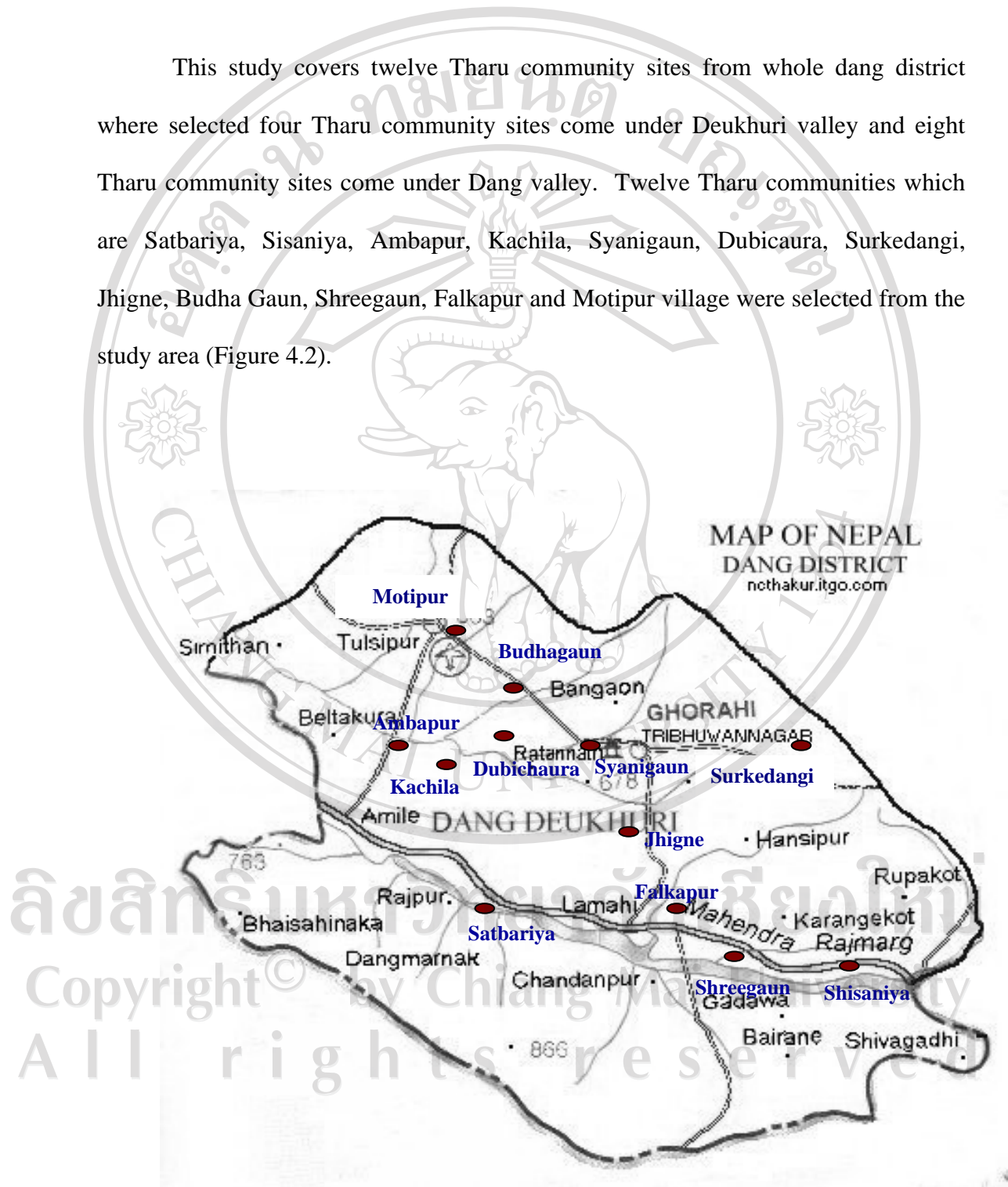


Figure 4.2: Location of twelve surveyed community sites under the study area

4.3 Topography of the study area

Dang district has as the major part being inner Terai and some parts being hill area. Most part of the district is under plain topography. The elevation of this district ranges from 213 meters to 2,058 meters from mean sea level.

4.4 Climate of the study area

Dang district has diversified climate from tropical climate to temperate climate where tropical climate is in major part of inner Terai and temperate climate is in small portion of hilly area. As a whole in district, hot is in summer and cold in winter season. The temperature ranges from 32.6 °C to 5.9 °C and the average rainfall is 1266.3 mm per year (Table 4.1).

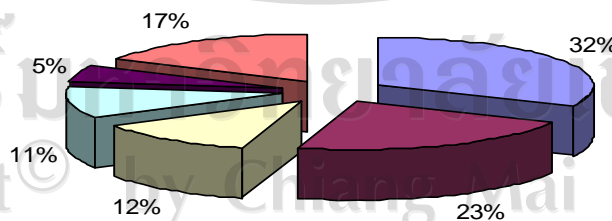
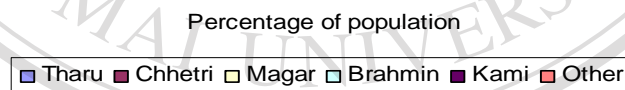
Table 4.1 Temperature and rainfall of the study area

Time	Maximum °C	Minimum °C	Rainfall (m.m)
July, 2005	30.5	23.6	403.5
August, 2005	30.8	22.9	293.9
September, 2005	30.2	21.6	191.3
October, 2005	29.1	16.9	8.2
November, 2005	25.2	11.2	1.6
December, 2005	22.9	7.8	19.6
January, 2006	22.7	5.9	0
February, 2006	26.8	12.2	0
March, 2006	28.3	12.9	32.6
April, 2006	32.6	17.8	44.2
May, 2006	32.2	21.5	116
June, 2006	31.7	22.7	157

Source: Meteorological records by Karnali West Rapti Basin office, Dang

4.5. Caste/ethnicity composition of Dang district

Residents of Dang district live in mixed ethnic and caste communities. The society of study area is caste/ethnic diversified area where are Indo-Nepalese, Tibeto-Nepalese and Indigenous Nepalese. The major groups are Tharu (32%) and Chhetri (23%) followed by Magar (12%), Brahmin (11%), Kami (5%) and other (17%) (Figure 4.3). The latter groups, plus many of Brahmin and Chhetri, are recent migrants from the mid-Himalayan hills. A majority of the population speaks Nepali. Tharu is the second most commonly spoken language. Most men and some women are bilingual. Chhetri and Brahmin caste are considered as elite caste that play dominant role of most of activities living in both rural and urban area. Ethnic group named Magar mostly do agriculture and some of them hold military and security staff. Kami is one of the traditional occupational castes who work to prepare metal pots, knives and other utensils made by metal especially from iron. Newar is one of the ethnic groups living mostly in urban areas holding business.



Source: Central Bureau of Statistics (CBS), 2001

Figure 4.3 Caste/ethnicity of Dang district

Tharu is one of the most ethnic communities covering 32 per cent of total population of Dang district who are tribal or indigenous group of the study area. The main occupation of this ethnic community is agriculture. Hiring labor, preparing mattress, basket from bamboo and rice straw and fishing in natural water resources are additional off farm activities of this community. Tharu people stay in cluster than separation. The Tharu ethnic communities live in cluster and form one community in a village where is either less or nil other caste/ethnic population than Tharu population of that village. In case of Tharu ethnic communities, households range from 30 to 250 household residing in same community. The study area consists of about 200 Tharu ethnic communities in where they show their unique identity than other caste/ethnic groups.

4.6 Selected Village Development Committees /Municipality sites and their village sites

Ten VDCs and one Municipality were selected to represent Tharu communities of study area in which composition of Tharu population is presented in Table 4.2. Satbariya, Sisaniya, Ambapur, Kachila, Syanigaun, Dubicaura, Surkedangi, Jhigne and Budha Gaun villages of Tharu communities were selected from each VDCs and two villages namely Shreegaun and Falkapur from Sonpur VDC and Motipur village of Tharu communities from Tulsipur Municipality.

Surveyed villages consist of Tharu ethnic groups and other caste/ethnic groups' communities. However, houses of Tharu ethnic community is isolated from other caste/ethnic groups and constructed in cluster form with attached house each other in one side or both side in between small passages. The Tharus live in a closely knitted family pattern. They live in a compact social unit which benefits them both

socially and economically. The link is forged through religious and economic ties. The Tharu households were found more than non Tharu households in Tharu villages in which proportion of non Tharu households were twenty per cent of Tharu households.

Table.4.2 Tharu population of selected VDCs/Municipality for household survey

VDC/ Municipality	Tharu	Other	Total	% of Tharu	Villages of sample Tharu communities
Satbariya	7,186	4,114	11,300	63.6	Satbariya
Sonpur	7,900	3,466	11,366	69.5	Shreegaun, Falkapur
Sisaniya	12,221	3,388	15,609	78.3	Sisaniya
Phulbari	1,139	4,307	5,446	20.9	Ambapur
Urahari	4,968	6,301	11,269	44.1	Kachila
Narayanpur	7,145	5,824	12,969	55.1	Syani Gaun
Dhikpur	4,223	6,428	10,651	39.7	Dubichaura
Tulsipur	4,203	29,673	33,876	12.4	Motipur
Rampur	2,488	8,996	11,484	21.7	Surkedangi
Laxmipur	2,812	7,917	10,729	26.2	Jhigne
Halwar	1,304	7,450	8,754	14.9	Budha Gaun

Source: Central Bureau of Statistics (CBS), 2001

4.7 Description of household activities in surveyed Tharu community sites

Majority of rural Tharu ethnic communities namely Shreegaun, Falkapur, Ambapur, Kachila, Dubichaura were found all farming households and Tharu community near the urban area namely Satbariya, Sisaniya, and Motipur were some percentage of non farming household due to availability of off farm work in urban

area and lack of own land resources. It was found that 90 percent of Tharu farming household and 10 percent of non farming households in surveyed Tharu community sites.

4.8 Demographic structure of Dang district

According to national population census 2001, the Dang district population is 462,380 (49.5 % male, 50.5% female), which comprises 82,495 households and the population density 156 per sq. km and male female ratio is 98.08 which is 2 percent of national population. Population growth of this district is 2.66 percent and an average of 5.6 members per household whereas national average was just about 5.44 members per family and population growth of 2.25 percent.

Demographic trends in study area are influenced by migration from the hills. Literacy is estimated at 52 per cent overall, with no more than 42 per cent for women. There is a lack of reliable economic, statistical and ethnographic data on either district. If the population of Dang district is categorized by age group, the economically active population (age ranges from 10 to 59 years) of this district is 69.5 percent of total population of district. The economically active member comprises all members of either sex who furnish the supply of labor for the production of goods and services during a specified time-reference period. The economically active members and its relation to the total members of household by age group, the lower and upper age limits used for inclusion in the economically active members aged 10 years and above up to 65 are included. The average economically active population of study area is 69.5 per cent of total population (Table 4.3) where as 34 per cent from male and 35.5 per cent from female which shows that plenty availability of human resources of study area. The landless (*sukumbasis*) having no land of their own and

land-poor are left at the mercy of big farmers and landlords, often forced to sell their labor for a negligible wage in study areas.

Table 4.3 Population by age and sex of Dang district

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
Under 10 years	64,563	14	63,080	13.6	127,643	27.6
10 -65 years	157,361	34	163,990	35.5	321,351	69.5
More than years	7,034	1.5	6,352	1.4	13,386	2.9
All ages	228,958	49.5	233,422	50.4	462,380	100

Source: Central Bureau of Statistics (CBS), 2001

4.9 Demographic structure of surveyed Tharu Community sites

Labor is one of the most important resources for Tharu farming community as an input of agricultural production. The average member of household is 8.1 members per household, ranging from 3 to 21 members per household. However, 14 percent of household had 2 to 4 members per household, while 37 percent of 5 to 8, 17 per cent of 9 to 12 and 8 per cent of 13 to 21 members per household (Table 4.4).

The economically active member comprises all members of either sex who furnish the supply of labor for the production of goods and services during a specified time-reference period. The economically active members and its relation to the total members of household by age group, the lower and upper age limits used for inclusion in the economically active members aged 10 years and above up to 65 are included. The average economically active population of household is 6.3, ranging from 2 to 16 economically active members which shows that plenty availability of agricultural labor resources of Tharu farming communities of study area.

Table 4.4 Demographic structure of surveyed Tharu Community sites

Members per household	Household size		Economically active members per household	
	No.	%	No.	%
2-4 members	10	14	18	25
5-8 members	37	51	41	57
9-12 members	17	24	9	13
>13 members	8	11	3	4

Source: Workshop and survey, 2007

4.10 Land use pattern of Dang district

The study area covers about 80,276 ha arable lands. The arable land consists of 64,110 ha *khet* and 56,870 ha *bari*. *Khet* is more fertile land having higher production potentiality in paddy and high value crops are grown in that land where as *bari* is less fertile usually rainfed in which low preference crops like maize, barley and lentil are grown. The production of any crop on land depends upon the water availability and water retention capacity of the land. Only 27 per cent of the total land of study area is cultivable. However, only 20 per cent of total land is cultivated (Table 4.5)

Table 4.5 Land use and utilization situation of Dang district

Land utilization	Area (Ha)	Percentage
Cultivated land	60,780	20.5
Cultivable non cultivated land	19,496	6.5
Forest	197,490	67
Grazing land	7,346	2.5
Other	11,107	3.5
Total district area	296,221	100

Source: District Agriculture Development Office (DADO), 2007

4.11 Land holding by caste/ethnic group of Dang district

Seventy six percent of district population depends upon agriculture under study areas that's why agriculture is considered as the main sources of their livelihoods. Total land holding household number of Dang district is 68,500 having 65,980 ha with 3.1 parcel land. Chhetri covers 36 per cent of total cultivated land followed by 27 per cent by Tharu, 19 per cent by Brahmin, 8 per cent by Magar and 1 percent by Damai (Figure 4.4). The total land holding of Tharu people is 19,255.5 ha which accounts for 0.039 ha per person and 0.24 ha per Tharu household.

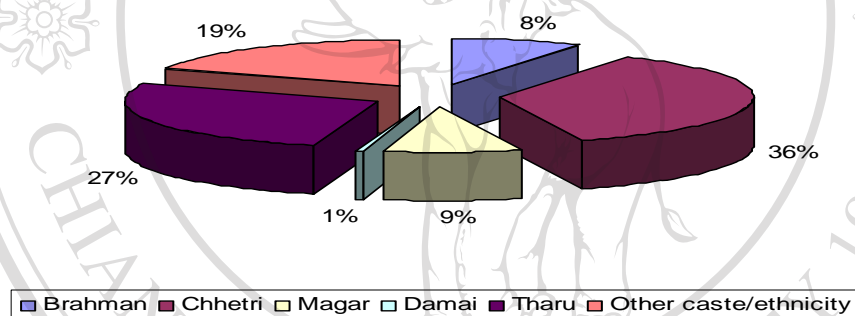


Figure 4.4 Land tenure by ethnicity/caste of Dang district

Source: Central Bureau of Statistics (CBS), 2001

4.12 Land tenure system of Dang district and surveyed Tharu community sites

Land tenure system is one factor responsible for variation in food security among households. In the 2001/02 Census of Agriculture of Nepal, a total of 52,189 holdings (76 per cent) of land holdings were fully owned in Dang district. A total of 16,311 holdings (24 per cent) comprised land which was partly owned and partly rented.

The average farm size of own land per Tharu community was found 30 *kattha* (1 ha) with maximum of 108 *kattha* (3.6 ha) to minimum of 3 *kattha* (0.10ha). It

shows that some Tharu people under some communities own vast land resources and some own very less land resources. The some people of four farming communities like Satbariya, Sisaniya, Kachila and Syani Gaun rent out some parcel of land due to higher land resources on them. There is *Adhiya sharecropping system* (50 per cent share cropping) which is being practiced for tenant land. *Thekka system* (contract in rate of 1.1 metric ton rice per hectare) is available in Dubicaura Tharu communities who are receiving land of religious institution as tenant land. The average farm size of cultivating land with own land and tenant land per Tharu community was found 44 *kattha* (1.47 ha) with maximum of 92 *kattha* (3.07 ha) to minimum of 17 *kattha* (0.57 ha) (Table 4.6)

Table 4.6 Average area of landholdings by surveyed Tharu community sites

Communities	Own land	Tenant land	Rented out land	Cultivating land
 <i>kattha</i>			
Satbariya	108	7	22	92
Shreegaun	6	38	0	43
Sisaniya	42	0	21	17
Falkapur	6	47	0	52
Ambapur	15	40	0	54
Kachila	34	17	8	40
Syani Gaun	90	7	18	75
Dubichaura	16	24	0	38
Motipur	5	31	0	34
Surkedangi	23	15	0	37
Jhigne	8	20	0	27
Budha Gaun	3	23	0	25
Average	30	22	6	44

Note: 30 *kattha* =1 ha

Source: Survey, 2007

4.13 Water resource availability of Dang district

Irrigation is the main resources for development of agriculture. There are two main rivers in Dang district named Rapti and Babai rivers which are perennial water sources for the study area. There are other perennial and seasonal water streams in approximately every five kilometers distance from east to west which are good sources of water for the study area. Two big rivers and more than 50 perennial and semi perennial streams of the study area feed irrigation systems, power grain mills, and supply drinking water for different villages of the study area. However, irrigation is available especially in low land of the study area. To minimize the effects of climatic condition of the study area, provision of irrigation is needed. But the available water resource is also greatly influenced by the climate. There is the seasonal variation in the discharge of the rivers in which more in winter season and very less irrigation facility in the spring season through these systems. To maximize the agricultural production, year round irrigation in the whole irrigable area of the study area is needed.

4.14 Forest resources of Dang district

The Bhahabharat range northern side and Churia range southern side of Dang district with 69 percent of total land is covered by a highly degraded deciduous forest.

Sal (*Shorea robusta*) and associated species predominate, including *khair* (*Acacia catechu*), *jaamun* (*Syzygium cumini*), *bael* (*Aegle marmelos*), *bot dhangero* (*Lagerstroemia parviflora*) and several tree species and genera. The district was once a virtually uninhabitable and dense malaria-infested jungle predominated by *sal* and associated species.

Presently around 197,490 hectares of forest is under the control of more than 293 community forest user groups in Dang district. The forest management of the study area is done by community a forestry user group which is based on people's participation to encourage active participation of local people in forest management activities as a means to improve the livelihoods of these people. Under the community forestry (CF) structure, local people make decisions regarding the forest management, utilization and distribution of benefits from a forest; they are organized as a Community Forest User Group.

The forest is an important source of supplementary food resources, especially for the landless and near-landless poor of both districts. Major and minor forest products are consumed or sold in local markets and exported (illegally) across the border to India. Forest foods are particularly important to the poor during the most intense food deficit periods (March-May). They include fruits, nuts, berries, tubers, leaves, mushrooms, insects, small animals and birds. The forest also provides fuel and fodder supplements to the farm enterprise, and raw materials (timber and fuel) for small scale rural enterprises and industries. Fuel wood from both common and reserve forests is the principal energy source.

Tharu ethnic communities live near the forest, which is considered as good resources for their livelihoods. Firewood, wild food, fodder and litter for livestock, wood for building material and agricultural uses such as wood plow and fences are received from forest. It was found that 10 Tharu communities (83 per cent) are members of forest user groups with other cast and ethnic groups and using forest resources for their livelihoods. However, two Tharu communities (17 per cent) were

found not to have memberships of forest users groups who are using forest resources illegally.

4.15 Institutions of the study area

Institutions are structures and mechanisms of social order and cooperation governing the behavior of two or more individuals. Institutions are identified with a social purpose and permanence, transcending individual human lives and intentions, and with the making and enforcing of rules governing cooperative human behavior. The term, institution, is commonly applied to customs and behavior patterns important to a society, as well as to particular formal organizations of government and public service. Institutions are a central concern for law, the formal regime for political rule-making and enforcement.

District administrative headquarters are at Ghorahi town, in the middle of the district. The district administration is headed by a chief district officer appointed from the Ministry of Home Affair. District development responsibility was headed by a president of district council of elected representatives from each of the *Ilaka level* composed by integrating 3 or 4 village development committee and administered by local development officer appointed from Ministry of Local Development. He is assisted by district officers from each of the line agencies (agriculture, forests, soil and water conservation, health, education, etc.). In addition, there are offices of the Agricultural Development Bank, the Rural Development Bank, a cooperative office and several commercial banks. The district committee is linked upwards through the zonal administration to the central administration and national assembly in

Kathmandu. Many community areas have primary schools and high schools. There is one university, many colleges in different part of the district.

There are three levels of public institutions under study areas which can be divided into zone level, district level and local level institution. Zonal office provides services of 5 districts under rapti zone which are located mainly at Tulsipur as headquarter of rapti zone while district level office provides services delivery to the all residents of the whole Dang district which are located at Ghorahi as head quarter of district. Moreover, local level offices are situated at different local areas to provide services to households of beneficiaries which are agricultural service center, livestock service center, health post, post office and village development committee, rural development bank etc.

Along with the above mentioned zonal level and district level institutions, three types of institution are additionally found in Tharu community which are categorized into public local institutions, Local level NGOs /private service providers and Tharu traditional institutions.

4.16 Public local institutions

District Agriculture Development Office (DADO) established under the Department of Agriculture (DOA) and District Livestock Service Office (DLSO) under Department of Livestock Service (DOLS) of the Ministry of Agriculture and Cooperatives (MOAC) operate its extension services through Agriculture Service Centers (ASC) and Livestock Service Centers (LSC) at the community level. Different service and facility providing local institutions were found in surveyed Tharu community sites. Agriculture service center and livestock service center are

those local offices that provide technical support to farmer at their field through individually or group approach. The government of Nepal has been adopted farmer's group approach for agricultural service delivery mechanism to farming communities as best extension approaches even in most of development activities. Farmer group is agricultural extension approach to disseminate agricultural technology to the farmers.

Group approach is one of the most useful tools to develop self driven group within backward community for improving their livelihoods and food security through resource management as community based organization. Different Community based organization (CBO) was found for their resource management and better livelihoods in study areas which is one of institutionalization process of human society for the natural resource management which include the full engagement of local stakeholders (with emphasis upon marginalized groups), the recognition of customary access rights, and changes to the processes of local planning and resource governance, and to the organization and roles of the key stakeholders. Most of the local governmental and non governmental organizations' programs are focusing toward strengthening the community based organization for resource management.

Community based organizations are based on eight principles; boundary, benefits, collective choice, monitoring, sanctions, conflict resolution, recognition and nested enterprises. Community based organizations can address the issues faced by other local institutions that are governance, empowerment, decentralization, collective actions, effectiveness, partnership and networking. Community based organizations increase the participation of people which lead to represent in any community activities and empower the people to obtain benefit for all from optimum use of their resources. CBO helps for the formation of social capital which facilitates cooperation,

effective local institution and collective action. Social capital is the degree to which a community or society collaborates or cooperates through mechanisms as network shared trust, norms and value to achieve mutual goal that may be natural resource management. Social capital is based on four aspects: relation of the trust; reciprocity and exchange; common rules, norms and sanctions; and connectedness, networks and groups. Irrigation user's group, forestry users group and farmers groups for research and experimentation are the examples of community based organization for community based natural resource management in the study area.

Most of Tharu community has near access to school for education and health post for health service where as local level agricultural service center office providing agricultural services to farmers at local level were far from their communities. Agriculture market is near for some community and somewhat far from some Tharu community.

4.17 Non governmental organizations (NGOs) and private service providers

Apart from the local public sector organizations mentioned above, there are private service providers and NGOs supporting agricultural extension activities in the study areas. These organizations work mostly with commodity groups either individually, through the funding of donor agencies or at partnership basis. These are primarily involved in the production and marketing of seeds, fruit saplings, fingerlings and supplying of sprayers, fertilizers, pesticides and agricultural tools and so on.

Different non governmental organizations (NGOs) are also available in Dang district which are providing services to specific target group and areas during specific period of duration. Backward Society Education (BASE), Society for Environment

and Education Development (SEED), Boat for community development (BCD) and Help Society-Nepal (HS-Nepal) are the local social nongovernmental organizations (NGOs) working currently with national NGO, INGOs and GOs and donor agencies to uplift livelihoods of disadvantaged and marginal groups especially Tharu community in Dang district. The objectives of these local NGOs are to promote social awareness, to encourage communities to implement programs on social issues and income generation activities and also identify local resources and encourage their maximum use. Group formation and empowerment, educational program, income generation programs with bonded labor (*Kamaiya*) are currently launching programs from NGOs in the study area. NGOs have been promoting and protecting Tharu indigenous cultures, knowledge and skills through promotion of traditional and modern technologies and also encouraging traditional songs, dances through various cultural shows and competitions. The private service providers like agro-vet center supply seed, pesticides, sprayers and agricultural tools and medicine for livestock where as fertilizer dealer shops supply fertilizer and fruit nurseries supply fruit saplings.

The budgets of all NGOs are based on funds from outsiders especially from donor agencies and NGOs launch program and activities during specific period of time until termination of funds.

4.18 Tharu traditional institutions

Traditional and social institution is a group of social positions that originate within the community, connected by traditional and social relations, based on traditional systems of any community, performing a social, cultural and traditional role and responsibility generally as various forms of community support, and exist to

address issues of specific community concern and interest. It can be also defined in a narrow sense as any institution in a community that works to socialize the specific groups in it. The traditional types of Tharu ethnic community have been found on study area which starts from household level to regional level.

At household level, the head of household is called as *Gardhuriya* which is inherited by the eldest son after the death of the household head. Head of the Tharus community is called as *Matawan* (community headman) which is nominated by all *gardhuriya* of that Tharu community who functions as headman in his communities. The *Matawan* performs the role of social and cultural headman. *Matawan* is responsible for settling all kinds of casual and specific problems in the community. *Deshbandhya Gurwa* functioned as a regional headman who is selected from *Matawan* of different Tharu communities under region.

This three tiered arrangement plays a functional role in the continuation and the maintenance of Tharu socio-political system even today. In addition, the traditional institution namely *Khyalas* are held both formally and informally in every walk of Tharu life. *Khyala* is a meeting and discussion to solve the practical problems of individuals and community. The *Matawan* calls for a meeting within community to address problems which is held frequently for different reasons in the Tharu community. All households and individuals in the Tharu community are socially and culturally connected with the *Khyala* which holds the complexes of behaviors and norms serving the collectively valued purposes of Tharus. Traditional institutional system of Tharu community indicates to the reality that they can develop and

institutionalize their own social, cultural, economic and political system to improve their livelihoods and food security without any external support.

4.19 Market and transport service facility of Dang district

Dang district has two wide, low elevations Inner Terai valleys with better transportation and communication facilities connected to rest of Nepal by the east-west highway that has a great potential for trade and transit. Butwal, Krishna Nagar and Nepalgunj are the nearest market centers outside the district where the agricultural products of Dang district can be supplied and marketed and Ghorahi and Tulsipur are the main internal marketable city. Along with above market, periodic markets are also available in local areas for marketing of agricultural produce.

There is only one airport at Tulsipur located in west part of the district, a one hour drive from Ghorahi (headquarter of Dang district). There is no railway. Public transport is by bus or truck. Private transport is by jeep, car and automobile on the paved roads and on some side roads during the dry season. The study area consists of 35 roads or streets with 144 kilometer distance paved, 267 km distance gravel and 286 km distance clay built road. The district is bisected by the East-West Highway, paved roadway which serves for transport of local products traded in and out of the district, and for incoming commercial and industrial items. Most inhabitants use motorbikes, bicycle, and rickshaw. Walking by foot is most common for those people who are poor and remote from market areas. The public and private bus service is available for traveling long distances.

4.20 Production and productivity of Dang district and selected villages

4.20.1 Cropping system of Dang district

The farmers of the study area are primarily growing a variety of subsistence and cash crops. Types of crops cultivated are cereal grains (rice, wheat, maize), legumes and pulses, oil seeds, vegetables, fruits (mango, leechy, papaya, guava and jackfruit) and some cash crops (oil seed, lentils, vegetable and sugarcane). Agricultural crops from this district are important to all Nepal, to the point where is known as net export district of crops especially rice and vegetables to other deficit district.

Paddy is the main field crop of study area. Where there is irrigation, or where pumps are employed for watering fields, paddy is grown as the first most important crop. Wheat is the second most important cereal crop in the study area. Maize is grown mostly in the rainfed areas. A number of leguminous crops and oil seeds are also grown throughout the study area as a supplementary to paddy, maize and wheat. Among the cash crops, mustard seed, and potato are popular. Some communities including Tharu communities are engaged in growing green vegetables as cash crops which are sold through truck transporting to other parts of Nepal, such as Butwal, Pokhara, Narayanghat and Kathmandu.

4.20.2 Yield of cereal crops

The yield of cereal crops for the study area is 2,988 kg/ha for paddy, 2,390 kg/ha for wheat, 2,500 kg/ha maize where as it is 2,717 kg/ha for paddy, 2,074 kg/ha for wheat, 2,038 kg/ha maize for national level and 2,550kg/ha for paddy, 1,750 kg/ha

for wheat, 1,100 kg/ha maize for village level which is higher than the national level and selected village level yield (Table 4.7) The productivity of surveyed villages is lower as compare to the study area (Dang district) and national level productivity.

Table 4.7 Yield of cereal (kg/ha) in 2005/6

Crops	National	Dang district	Village*
Paddy	2717 kg/ha	2988 kg/ha	2550 kg/ha
Wheat	2074 kg/ha	2390 kg/ha	1750 kg/ha
Maize	2038 kg/ha	2500 kg/ha	1100 kg/ha

Note: * Field survey, 2007

Source: Agri Business Promotion and Statistics Division (ABPSD), 2006

4.20.3 Livestock and its production of Dang district

Livestock farmers raise cattle, water buffalo, goats, sheep, fowl, duck and pigs. Farmers rear livestock especially for home consumption and some for income. The population of cattle is 164,117, buffaloes 72,190, sheep 29,080, goat 105,056 fowl 573,103 and duck 8,019 in number (ABPSD, 2006).

The farmers raising livestock under study area produces 26,472 metric tons milk from buffalo and cow, 4,796 metric tons meat from goat, sheep, pig and buffalo and 17,239,000 numbers eggs from fowl and 20,356 Kg owl from sheep (ABPSD, 2006).

4.21 Food availability and requirement of Dang district

Dang district is one of the food sufficient districts in Nepal. The district level cereal production is higher than the overall requirement which represents all people are food secure in district level (Table 4.8). However, all people are not food secure

at the household level, even though the study area produces enough food for everyone (ABPSD, 2005). This fact shows that food production does not guarantee improved food security and nutrition of all people of study areas. The principal groups of food insecure people are backward ethnic communities, low caste, upland dwellers, landless and small farmers in Nepal in which Tharu ethnic community is one of them.

Table 4.8 Food availability and requirement of Dang district in 2003/4

Population (persons)	493,908
Total Edible Production (Quantity in Mt)	120,288
Requirement (Quantity in Mt)	89,397
Surplus (Quantity in Mt)	30,891

Source: Central Bureau of Statistics (CBS), 2004

From description of the study area in this chapter, major part of plain topography, tropical climate and rainfall and temperature of the study area shows favorable condition for tropical agriculture in the study area. Diversified caste/ethnic groups are available where majority groups are Tharu (32%) and Chhetri (23%) followed by Magar (12%), Brahmin (11%) and Kami (5%).

Ninety per cent of Tharu populations were found dependent upon agriculture from surveyed twelve Tharu communities in which the average members of household is 8.1 ranging from 3 to 21 which shows plenty availability of agricultural labor force. A forest resource is about 69 per cent of the study area which is managed by community forest user groups. Public service providing institutions are available from zonal office to local office along with Tharu traditional institutions, private service providers and non governmental organization to provide service facility to beneficiaries in the study area.