CHAPTER I
INTRODUCTION

1.1 General Background

1.1.1 Geographical Diversity of Nepal

Nepal is land-locked country located in south Asia between India and china, at 28^0 north latitude and 84^0 east longitudes. The border line with India and China is 1598 km and 1078 km, respectively. It contains 8 of 10 highest mountain peaks in the world including Mount Everest. Elevations of the country vary from about 60 meters above the sea level in southern plain area to 8,848 meters (Mount Everest). (Alam, et.al. 2004:1).

The most famous of these mountains including Kanchan junga (8,595 meters) and Daulagiri (8,137meters). The lowest geographical point in Nepal is in the Jhapa region and measure 60 meters above sea level. It has a very diverse environment, resulting from its impressive topography and extreme spatial climate variation-from a tropical to acetic climate with a span of about 200 kilometers. Kathmandu, the capital city is located in the centre of the country (The total area of Nepal is 147,181 square kilometer. The Himalayas makes up approximately 15% of Nepal, the Hills make up approximately 68% and the Terai makes up approximately 17%).

Nepal is commonly divided into three physiographic areas: the Mountain region, Hill, Siwalic region and Teria regions. These ecological belts run east-west and are vertically intersected by Nepal's major, north to south flowing river system. (Nepal-Wikipedia, the free encyclopedia).

1.1.2 Socio-Eco-Cultural Diversity of Nepal

Nepal is less developing or under developing countries of the world. Poverty and hunger is being main problems in this country. There is wide gap between

rich and poor. Basically in rural areas, people are dependent on traditional agriculture system. There is no sufficient market facility to supply agro-product. According to Prithivi Narayan Saha "Nepal is 4 varn 36 jati ko sajha phulbari". Nepal is multi cast; lingual; religious; cultural country. Diversity is main characteristics of this county. There is a religion tolerance between diverse groups. They respect each other's caste and theirs tradition and culture. But people are more aware that they demand in their constitution federal autonomous system. People are fighting for freedom, identity, and right. They do not dominate each other's caste, and religion.

1.1.3 Ethnic Groups:

Originally the term ethnic was used to indict belonging to a nation, especially a pagan one. It is now used by sociologists and social and cultural anthropologists to denote membership of a distinct people possessing their o own customary ways or culture. (Bhushan, 2003).

In Nepal there are approximately 120 casts identified. Like a Bahun, Chhetri, Baisya and Sudra. The term ethnic group or janjati refers to people with own language, culture, and native area. Cast group, on the other hand, denotes a social group that is classified into status hierarchy (jat). In other words, ethnic groups are horizontally distributed in space while casts groups are vertically stratified by rituals status. Although population enumeration through decennial census is begun in Nepal in 1911, there was virtually no data available on the social composition prior to 1952/54. (Gurung, et. al. 2006).

1.1.4 The Indigenous People of Nepal

The indigenous nationalities are generally non-Hindus with their distinct identities regarding religious believes, social practices and cultural value. But after the unification of the numerous principalities by king Prithivi Narayan Shah in the second half of the 18th century, these grays were forbidden from following their centuries 'old rituals and were coerced into abiding by the new

rulers' dictates which based on Hindu hierarchical caster system. This Hindu doctrine virtually incapacitated in the indigenous nationalities and they were subjected to servitude throughout the modern history of Nepal.

Although Nepal is multi-racial, multi-cultural, multi-lingual, and multi-religious country, in practice, the janjatis were restricted from pursuing these democratic precepts and were governed strictly as per the Hindu hierarchical caste system. As a risky if thus state. The concept of Hindu superiority prevailed overwhelmingly. It is only after the internal conflict ended in 2006 that brought some relief to the janjatis. Characteristics of indigenous nationalities: a distinct collective identity, Own language, religion, tradition, culture and civilization, own traditional egalitarian social structures, traditional homeland and geographical area, written or oral history, The felling of 'we' and Living of Nepal from time immemorial.

The national census of 2001 has given the population of the janjaties as 37.2% out of the total population of nearly 25milion. But the census enumerated has taken into consideration only 43 of the total 59 identified janjaties and 16 indigenous nationalities were declared as others'. With their inclusion, the properties of the janjatis population would go up.

The geographical habitations of the 59 identified indigenous nationalities are as follows:

Mountain region (Himalayas) : Barah Gaule, Bhote, Byansi, Chhaiorontan, Dolpo, Larke , Lhomi, (Shingsawa),Lhopoi, Marphali Thakali, Mugali, Siyar, Sherpa, Tangbe, Thakali, Thudom Topkegola and Wallung

Hills   :   Baramo, Bhujel, chepang, chhantyal , Duraa, Fri, Gurung, Hayu, Hylmo., jerel, Kusanda , Leocha, Limbu, Mager, Newar, pahari, Rai, Sunuwar , Surel, Tamang, Thami, Kumal, Yakkha, and Tin Gaule, Thakali.

Inner Teria: Bankaria, Bote, Danuwar, Dari, Majhi, Raji, and Raute.

Teria   **:** Dhanuk (Rajbansi), Dhunal, Gangai, Jhangad, kisan, kushavadia, Meche, Rajbansi (koch), Satar (Santhal), Tajpuria and *Tharu*. (NFIDN, 2006).

1.1.5 *Tharu* they are Rich:

*Tharu*s are Principal and largest indigenous ethnic group of Terai in Nepal. They are rich in their own typical culture, language, tradition, folk dance, literature, art, tongue, folk philosophy, indigenous knowledge, rite, sport, honest. They have been living in Terai from last thousands of year. They have been developed this civilization and have still been practicing their indigenous knowledge, technology and social norms, value, and values in all over *Tharuhat* area. *Tharu* have their own identity, geographical territory, language, culture, tradition, indigenous knowledge, technology and practice, attires, and ornaments, rites and rituals, feasts and festivals, social norms and values. *Tharu* are enjoying with joint family. The physical structure of *Tharu* is wide face, flattered nose, medium height, solid body and complexion color. *Tharu*s are simple, honest and peaceful in their nature. History knows that Terai was unhealthy because of epidemic diseases like malaria, small pox, coloriya. The regular life of *Tharu* was not only problem because they had already developed immune power against such epidemic diseases. (Dahit, 2009).

1.1.5 *Tharu* Indigenous Technology

Tharu indigenous technology has not got legal recognition, equity and benefit sharing and authorized mechanism. Nepal governments have already ratified ILO Convention 169, CBD Convention and declaration like, UN Declaration regarding on indigenous people. But still been not practicing or indicating in Nepalese constitution. *Tharu* and *Tharut* main occupation is agriculture. Nowadays, The *Tharu*s, who are living in village area, have still been adapting traditional technology in daily life.

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Tharu have their own technology to do work. Due to impact of modern technologies the indigenous technologies have been disappearing day by day. We need to be serious about the toss of our indigenous heritage. These indigenous and traditional technologies are the identity and national heritage of the country. As a part of heritage preservation, these technologies must be preserved and contend. A Technology is sustainable and appropriate only when the technology can meet the needs and demands of the changing time. Some types of modifications have to be made to make a technology sustainable as per the demand of changing time. Simple modifications could lead to sustainable improvements in terms of time, energy, and productivity. That is to say, technologies should be appropriately modified according to the need of the time.

1.2 Statement of Problem:

It is essential to find out the indigenous technology and to promote this technology. Indigenous communities have their own traditional skill and knowledge which are transferred and practiced from generation after generation. Among these communities, *Tharu* community is also rich in its own skill and knowledge which is used for the fulfillment of their basic needs and livelihood. These technologies are based on local natural resources and agriculture product. These technology help in alleviating poverty with the creation of employment opportunities. But now modern technologies are highly accelerated and *Tharu* traditional technology is in threat.

Every nation or ethnic group of the region may possess some kind of technology traditionally minted by them and exclusively applied for their survival. Nepal is no exception in this regard. About a century ago Nepal used to survive solely on the traditional technology. Although, some of the technologies have survived and are still in practice some have been almost totally forgotten, and few of them have little improved through the modernization attempts but majorities of the traditional technologies are still to

be carefully documented before any possibility of appropriate corrective improvement efforts.

Different studies about *Tharu* community/technology have been found no exploring this faction of the community. Therefore, present study has focused more on seeking the answer of some of the question that were left unanswered by the previous researches. Some of these questions are listed as follows:

- What are the indigenous technologies of *Tharu* community?
- Which resource are they using?
- What resources do the technology made-up?
- Who are involved in these technologies?
- Are the resources easily available or not?
- Are the resource is highly accessible or not?
- Is the utilization of resources being any kind of conflict to the community?
- If yes, how could they manage it?
- Are they satisfied in using their technology?
- Are these technology socio-eco-cultural friendly?
- Are there any existing government & non-government policies or programs to improve these technologies?
- Are they satisfied in using their technology?

1.3 Objective of the Study

The general objective of the study is to find out the indigenous technologies of *Tharu* Community. The specific objectives are:

- To identify the indigenous technologies of *Tharu* Community.
- To find out the resources used for the technologies.
- To analyze the impact of indigenous technology on income generation of Tharu Community.

1.4 Significance of the Study

Rural areas of the developing countries, such as Nepal, need better technology for their development. Nepal has diverse culture and indigenous groups. These indigenous groups have been practiced starting from the time of their existence. Nepal is less developing country which has been poverty stricken could not afford the cutting edge technologies for its development. The promotion and development of the existing technologies, the choice of technology, however, is a question of appropriateness, in the sense that anything new may not be the ever better. It depends on time, place, and situation. That technology would be sustainable which technology is income generating, and favorable to environmental, social, and economic condition.

This study will make easy to learn about technologies of *Tharu* community and it is assumed that this study will help in keeping records of the existing indigenous technologies being practiced by the community and thus serving as a literature for the furtherer study or research on the community. Before this no any scholars have researched or observed it. Besides that, the policy maker, planner and other concerned agencies would also be benefitted by the conclusion of the study.

1.5 Limitation of the Study

This study had budget and time limitation like most others. Because each and every research has its own limitation. This present study is based on the indigenous Technology of *Tharu* Community of Saptari district in Kabilasha VDC. The study is very specific like that of the case studies. So, the conclusion drown from the study might not be applicable to other regions of the country.

1.6 Organization of the Study

This study has basically been organized into six chapters. The first chapter is an introduction of the subject matter which includes background geo-socio-cultural diversity in Nepal; Indigenous technology of Nepal and *Tharu*

technology relied to back ground of the study; *Tharu* they are rich, *Tharu* indigenous technology, and the statement of problem of the research. Similarly, objectives and signification of the study as well as its limitation have been explained in the latter half of the first chapter. The second chapter deals with the related literature review. The third chapter has explained the methodology of the research. The fourth chapter is the description of the study areas. The fifth chapter is data presentation and analysis. The six chapters are focused on summary, conclusion and recommendations.

CHAPTER II

LITERATURE REVIEW

The relevant literatures regarding indigenous technology and *Tharu* community in the published/unpublished documents are reviewed in this chapter. For this purpose various books magazine, working papers, plans, thesis, reports, newspaper, website, etc. are consulted.

2.1 Technology (concept & meaning)

Technology may be defined as a way of doing things in a better rewarding ways less physical and mental fatigue as well involving less time technology associated with the livelihood and overall development of the people is over neutral. As technology can be embodied in various forms such as machinery equipment, documents, process and skills it conveys different meanings to various people under different context. In order to avoid any ambiguity. Technology is defined here with respect to origin purpose and characteristics. (Shrestha et.al. 2010:3).

"Technology is the knowledge that leads to improve machinery, product, and processes. Addition to this knowledge reduce the real cost of production and lead to the introduction of new product". (World's Development Report 1991)

Technology is a man made and it is a means to enhance the physical and mental capabilities of human beings for their prosperity and comfort. (Sharma and Sharma, 2008:18)

Technology is means of doing work. Simply, it is a tools or a way of doing things. According to Oxford Advanced Dictionary Technology is the scientific study and use of applied sciences or application of applied science to practical task in industry. It is clear that technology is scientific use of applied sciences in practical works. Technology enhances working speed, accelerate working efficiency reduces over time in works, minimizes number of human labor use,

provides economy to the work. Hence, men practiced technologies to simplify their daily works and to make them easier.

Technology is the application of knowledge to the practical aims of human life or to changing and manipulating the human environment. Technology includes the use of materials, tools, technique, and source to power to make life easier or more pleasant and work more productive. Whereas science is concerned with how and why things happen, technology focuses on making things happen (answer.com/topic/technology)

Technology, as defined by the Encarta Dictionary, means the study development and application of devices, machines and techniques for manufacturing and productive process. Thus, technology is a means to enhance the physical and mental capacities of human beings. A technology can be embodied in various forms, such as machinery, equipment, documents, process, and skills. Technology, must have a market value, it is a new form of currency, provides comparative advantage is not away free and its price depends on bargaining strength. Technology has been categorized into various categories according to its origin, purpose, and characteristics, technologies can be divided into Indigenous, traditional, modern technology etc. (Sigdel et.al. 2009:94).

Any technology that is native to a country is indigenous. Such is based on indigenous tools, techniques and raw materials (Gajurel, 1999). All rural people know things which outsiders to learn from them. (Chamber, 1983).

Technology can be most broadly defined as the entitles, both material and immaterial, created by the application of mental and physical effort in order to achieve some value. In this uses, technology refers to tools and machines that may be used to solve real world problems. It is far reaching term that may include simple tools, such as a space station or partial accelerator. Tools & machines need not be material; virtual technology. Such as computer software

and business methods under this definition of technology. (en.wikipedia.org/wiki-technology).

2.1.1 Types of Technology:

Generally, the types of technology had been given as: traditional technology, modern technology and appropriate technology, or rural technology, renewable energy technology, information technology, biotechnology, and solar technology.

2.1.2 Indigenous Technology: (meaning and application)

The meaning and application of indigenous technology is practice generation to generation. It is highly practical in daily life by special ethnic group, caste, age group, community, time, place and situation.

The process of time bound civilization cycle every nation ethnic group from diverse geographical concerned have had the opportunity of gather knowledge require sustaining the survival of human beings. The straight out put if the useful-knowledge put into action through the conceived design comprises technology. Any such technology is commonly known as the" Traditional Technology". Of, every nation or the particular ethnic group regards. Otherwise the technology "Indigenous Technology ". (Khadka, et. al. 2008:150).

Nepal is rich in terms of various indigenous technologies acquired by people here (likewise). The technologies that have been descending from generation to generation from ancient time can be called traditional technologies.

Thus, indigenous technology may or may not be traditional. And similarly, Traditional technologies may or may not be indigenous technologies. Among the traditional technologies in Nepal *Tharu* Technology is also traditional technology. The Region behind this is that the technology has been originated in the Terai area and it has been originated in the Terai area and it had been in use since that time.

2.1.3 Characteristics of Indigenous Technology

Rajbanshi, (2010) has prepared a study on Indigenous Technology of Rajbanshi community. She has found that

) First indigenous technologies are recognized as animate, imbued with the breath of life, they live in form and function having emerged from the realms of the invisible.

) Indigenous technology emerges from the implication order to reflect the art of skillful living. Indigenous technology is pragmatic. IT is responsive and responsible to the ecology in which it lives.

) Indigenous technologies attract the learning sprit (s) they provide a learning ecology that supports the revitalization and transformation of awareness and knowledge.

) Indigenous technology is intended to enhance the ability to maintained and renew balance and harmony within a multi-dimensional environment.

) Indigenous technology is created within a sensory environment that builds on our sense of relation, meaning, balance, feeling, memory, and place as well as sight, sound, smell, taste, and touch.

) Through meaningful interactions Indigenous Technology seeks to engage and evoke significance knowledge and experiences reflective of the Indigenous world.

) The ability or capability to make something does not constitute a valid region for its existence. Indigenous technology is coherent with the natural order.

) Indigenous technologies have intrinsic value because we know their ancestry where they came from, what their place is in our word. We know they will transfer and pass from, the place to return to the realms of energies. (silverbuffalo.org)

2.2 Reviews on *Tharu* Community

According to S. K. Srivastava, (1999) the *Tharu* culture is very Eco-Friendly, all cultural thing and activities of this tribe are deeply related with nature. Their residence, food, cloths, art, religion, economy and many other part of life are based on nature and keep ecological balance. *Tharu* people worship mainly their tribal Goddess (The Earth) called as 'Bhumsen' in their folk language. There is a well family system in this community. Women have high reputation, enough social and economic rights in their family system. This community has paternal family system but women have high position and more rights, this is a mark able fact. *Tharu* youth like changing so they are struggling for advanceness. There are many other communities existing in *Tharu* area by Industrialization and Business, so the process of cultural exchange is running in *Tharu* area. *Tharu* youth are attracting to new and charming life style. They are ignoring their traditional tribal culture that is why the identity of old *Tharu* culture is under dangerous. They must have to get advance education, communication, technology etc. But care of old culture is just too for keep their identity. (Chaudhary, 1999)

According to Singh (1988:4) and Sharma, JN(1983), The followers of theravad Buddhist were known as **" *sthavir***", to "thavir" and **"*thavir***"and **"*tavur"*** to '*Tharu*' is an easy and local verbal transition.

Dwivedi, (1955:3) state that the sort form of ''Stharu'' is **"*Tharu*"**, which means to stay behind or one does not move. According to him when Buddha came to kapilvastu for the first time after being enlightened, all his kinsmen were eager to join the Bhikku Sangha , But Buddha did not ordain all but only the selected ones. The rest of them who were left behind to continue with their family life were called " S*tharu* " that "*Stharu*", became "*Tharu*" later on. Indian sociologist **Majumdar** (1937:113) has also same agreements as given by Dwivedi and Singh. (Dahit, 2009).

*Tharu*s, at first, was Nature worshiper, which is also called "lock dharma". After wards, they became Buddhist. And now days, *Tharu*s have also been

adopting different religion as interest and choice, like, Buddhist, Hindu, Christianity Baha'i, and Muslim etc. (Dahit, 2009)

Year 1930 the Social Reform Movement which is popularly known as Jati Sudhar (reforms in cast) among the *Tharu*s was initiated by a handful of educated *Tharu*s. (Srivastava, 1958).

Tharu women dresses are take on identity. In tharu there is also diversity eastern and western. In east to west serialy are wear achara, kharki ,khodki in morang, khodki vula choli in Sunsari and Parsa, gonya, cholya, lahanga, kurtha, agharan in Dang dewkhuri, Bardiya, ghangagar choliya Kailali, anggiya, ghangagar, achar in kanchanpur and in Rana *Tharuni.* Tharus cloths are jhulwa,vegwa, aguchha, dhoti,kurtha,white kamij, chobandi, small child Langauti, jama. (Dahit , 2062).

One of the largest groups of people living in the Terai is identified by one generic term '*Tharu*'. *Tharu*s live throughout the length of the Terai with a slightly heavier concentration into middle and west. In fact, the areas of Thatu settlement do not terminate at Nepal's western border; they extend well beyond to the north part of Uttar Pradesh state in India. The traditional territory of the Tharwot. It consists of the forested land along the slattern base of the siwalic mountain range and south, a few miles into the terai itself. (Bista, 2004: 38).

Tharu marriages are monogamous and patrilocal. Most marriages are early are arranged by the parents of the couple concerned and always take place within the tribe except members of the same exogamous gotra (unit). There are small region variations in the basic marriage pattern. In normal cases of marriage by arrangement among the eastern *Tharu*s it is generally the girl's father who goes out in search of a match for his daughter. Among the western *Tharu* some relatives help the father to find a boy. In both cases the girl is usually older than the boy. Sometimes a girl of 15-16 years if age is given to a boy seven or eight years old. The main consideration is the wealth and the social status of the families concerned. (Bista, 2004:.38).

Mainly, *Tharu* are dependent in traditional agriculture. They use *Tharu* traditional technology. Like a *hallo, kodalo, bullcart etc.*

Aryal, (2009) has prepared a study on Ethno botany of *Tharu*: Incorporation of Culture and Biodiversity Conservation (A case study of Jayanagar VDC of Kapilvastu District) he found this study has documented the traditional knowledge of *Tharu* community in medicinal plants and can make good information for others. Wild edible plants are in huge consumption can have good nutritive value and can support the better animal husbandry and to fight against hunger as well in the country. The various uses of plants show a very close relation between rural people and their natural environment.

The result show that the people have good knowledge on different use of plant resources but this knowledge is being diminished, which should be preserved, promoted and disseminated.

By origin, the *Tharu* believe that supernatural beings residing in nature guide them in their daily life. They worship God in the form of natural forests, streams, rivers or a single tree, and can therefore be considered animists. *Tharu* have a totemic identity: the different ethnic groups have a specific plant or animal as their totem. Forests are protected by a Goddess, who is worshipped and asked for peace, prosperity and protection. For worshipping there are three types of temples: the first one is at the household level to worship the family deities, the second one is at the house of the *Gurau*, or spiritual leader. Here the Gurau meditates and performs rituals, for example to heal a person. The third type is the public temple, usually built close to a Pipal tree, or any other sacred tree, and it is here that public rituals take place. Astrological information is applied for several agriculture related activities, such as seed selection. *Mantras*, or ritual verses, are chanted to influence the environment, for example to stop heavy rains during beginning of monsoon. The *Tharu* also celebrate Hindu festivals. *Tharu* women are the guardians of culture and tradition. For example, they do the majority of wall paintings before *Deepavali*

- the festival of Lights and Cow in November. According to *Tharu* women, the major purpose of wall painting is to please the Goddess of wealth, called *Laxmi*. At the same time the cow is worshipped for good fortune in the house, as this animal is considered a major source of wealth. Sacred plants and trees, such as *Ficus religiosa* and *Ficus benjamina,*are often planted around the house. (Ghimire et.al. 2006)

*Tharu*s are simple, honest and peaceful in nature. They like to be far from, all kinds of quarrelsome life and forgery. *Tharu*s had adopted and gave also been adopting 5 basic doctrines of Lord Buddha from descending to descendant to descendant which develop the nature of *Tharu*s to be patient and peace loving. The weakest behavior of *Tharu* is to endure supper and depression without reaction. This is why cleaver and fraud men have been cheating *Tharu* in different ways. Dahit, (2009).

2.3 Summary of the Review

Different scholars, expert, writer, book, journals, magazine, newspaper and website give different types of clear view about indigenous technology and *Tharu* community. Indigenous technology adopters are specific area, caste group, and traditional way of doing work. It is depend on time, place, ethnicity and situation. Technology helps us to doing work easily, fast and save our time. Indigenous technology built our on our sense of relationship, meaning balance, feeling, money, and place as well as 3s (sight, sound, smell) & 2 t (touch and taste). Tharu culture is eco-friendly.

From the previous reviews of *Tharu* community, it is clear that there is limited knowledge on the community. But different scholars find out in them research different think about *Tharu* community. Some says: *Tharu* are Grate son of Buddha; *Tharu* is Nepalese son of soil: *Tharu* are come from 'Sindha Pradesh', *Tharu* are came from Indian desert '*Thar'*. Anyway Tharu are shelter in Nepal thousands of years. Tharus main characteristics are simplicity and honesty. They settle in Teria region east to west or Mechi to Mahakali zone. They were clots conforming to their climate and weather. Tharus main occupation is

agriculture. They are rich and unique in their own typical culture, language, tradition, folk dance, literature, art, tongue, folk philosophy, indigenous knowledge, and rite, sport, honest, food, dress, custom, religion, society, and medicinal plant. *Tharu*s are mainly Nature worshiper, and *Tharu*s have also been adopting different religion as interest and choice, like, Buddhist, Hindu, Christianity, and Muslim etc. They are highly superstitious. They believe in witch and witch doctor (Dami).

Dahit, (2009) on his book (Tharu Indigenous Knowledge and Practices & an Introduction to *Tharu* culture) has covered on Tharu community. He has focused and discuss on their book introduction, history or origin development and present situation, culture, occupation, knowledge, religious ceremony, Tharu medicinal plant, folk dance and song, food, drinks, language, handicraft socioeconomic status, etc. however he has not gone through each and every topic specifically and profoundly. Other study also faces same problem/weakness. Study has not been able to discuss or play significant role of livelihoods in *Tharu* community. Tharu indigenous technology faces modern and western technology facility and access. Cause of modern technology indigenous technology slowly gets lost on the way. In global age youth are attract in western-modern technology. Therefore, in order to preserve and promotion these indigenous knowledge technology and culture of such indigenous community in general, there is a need an insight and in depth study on the existing and past knowledge, technology and culture of such community. And awareness creation is most important to protect our technology. It wants to modification like an appropriate. Thus, the present study is play great role to protect *Tharu* indigenous technology. This study is supposed to contribute in filling the literature gap of previous studies.

CHAPTER III

METHODOLOGY

This chapter focuses the overall methodology of the present study. Research methodology is very important part of thesis. Methodology is the main organ of the research. This chapter describes the sources of data, population of the study; sampling procedures and data collection and analysis technique in detail of each subsection.

3.1 Research Design

The study has been carried out on the basis of exploratory as well as descriptive research design. The study has investigated the indigenous technology of *Tharu* community. The study has found out the trends of indigenous technology, access, use of resources and possible way to change these technologies into appropriate technology.

Beside the study has been made an attempt to describe the things related to indigenous technology, such as their use, existing condition and market facilities. Thus, study has been both descriptive and exploratory.

3.2 Population and Sampling Procedure

Saptari district of Sagarmatha zone was selected for the research, which has a significant potentiality of *Tharu* technologies due to the high population community living in the eastern region of Nepal. According to the census 2001, the total population of *Tharu* community is 15, 33, and 879 which shows 6.75 % of total population. Total population of *Tharu* language speaker in Saptari district is 95,908 it is 16.8%.

There are altogether 114 Village Development committees (VDC) and one municipality and for research Kabilasha VDC was selected as a study area. The total population of Kabilasha VDC, from census report of 1991, is 3824 living in 667 individual house hold. The total population of *Tharu* community in

Kabilasha VDC is 911. Among total household in nine wards in the VDC, only *Tharu* household were chosen for the study.

For the selection of the sample of the total 185 *Tharu* households in the VDC, purposive sampling of the non-random or non-probability sampling method was used. Among which 50 households, 5 key informant interview were selected purposively.

The respondents were taken mostly from the head of the household or elders and in case of the absence of the head; at least 16 years of family member are attempt.

3.3 Nature and Source of Data

The present study is based on both the primary and as well as secondary data. The study has been drawn on both types of data such as qualitative and quantitative. The following sources, methods and tools have been adopted for systematic collection and analysis of data required for this study.

3.3.1 Primary Data Collection

To collect the primary information, the study has applied some useful techniques and tools widely used in social science research.

3.3.2 Secondary Data Collection

Different sources like books, reports, journal, maps, newspaper, etc. related to the research literature from libraries, internet, etc. were searched for the secondary data and information.

3.4 Data Collection Techniques and Tools

3.4.1 Techniques of Data Collection

Following are some of the primary data collection techniques used during field study:

ｊ Observation

A participant observation of the study area was done for collecting general information of the study area like the natural resource endowment and its location, market place distance, different technologies used in the households, social and economic status, different infrastructures, etc. Research was equipped with observation checklist for the purpose which is shown in Annex. This method helped for the triangulation of the information provided by the respondents.

ｊ Key Informant Interview

Interview was conducted with the key informants who are working on the production and promotion for Tharu technology. Kll has been used to gather information on potentials, challenges, and further developments of natural resources based indigenous technologies local products and markets center development. This has been informal survey. For the interview key informants like leaders and elders from the *Tharu* community, organization affiliated to the indigenous community, teacher, and business man, experts were consulted.

ｊ Household Survey

Household survey has been used to gather household data and information on the function, potentiality and challenges of the resources and technology located in the study area. Also, the socio economic status of the household was collected. 50 household used for primary data collection.

3.4.2 Tools of Data Collection

ｊ Observation Protocol Sheet

Observation protocol sheet has been prepared to acquire data and information on *Tharu* technology and types of resources used. Structured questionnaire, as given in Annex, were used in the selected sample household information regarding the indigenous technology used by them and related information.

） Check List

The check list is other most important tool of collecting data a check list was drafted for the purpose that helped in guiding the interviews.

） Key Indicator

This tool has been interviewed on the *Tharu* indigenous technology of *Tharu* community. It is used in key informant interview for asking question. Questions are not only tight, loose question are also attached.

） Questionnaire

Questionnaires were used to obtain information about domestic *Tharu* indigenous technology. It was used to fulfill nature and purpose of the research.

） Camera

Capturing photos of *Tharu* indigenous technology was done by the help of camera. And photos are says everything about *Tharu* culture and technology. Photos show clear views about technologies shape and look.

3.5 Data Processing and Analysis

After collection of primary raw data, tabulation was worked out, further supplemented by computer software. After collecting data it has been classified in to qualitative and quantitative. (The computer software applied to the editing and each part of information has been classified, tabulated, and analyzed descriptively.

CHAPTER IV

INTRODUCTION OF THE STUDY AREA

This chapter focuses on the general background of the study area with physical characteristics. The main aim of this chapter is to make the reader clear about diverse aspects of the study area.

4.1 Physical Setting

Saptari district, a part of Sagarmatha Zone, is one of the seventy-five districts of Nepal, a landlocked country of South Asia. The district, with Rajbiraj as its district headquarters, covers an area of 1,363 km² and has a population (2001) of 5, 70, and 282. Saptari is renowned for its agricultural output, and is bordered on the east by the massive Sapt Kosi River and Bihar state of India, west Siraha district, north Udaypur and south boarder is surrounded by Bihar state of India. Saptari lies between 260 25' west to 26° 28' latitude and 86^0 east to 87^0 7' longitude. It covers 1363 kilometer squire area of Nepal. It average east-west length 43 Saptkosi to Balan river and north-south 42 km. Significant towns are Rajbiraj, the district centre, Hanumannagar, and Fattepur with the area government "Matsya Palan Kendra" fish farm. The famous Rajdevi temple, Chhinna Masta Hindu temple and Kangkalini temple are also located in Saptari District.

The majority of people e in the district is from *Tharu* ethnicity. They are also the original inhabitant of the district. In term of climate and vegetation, this district is the most fertile land for the paddy, wheat, cereals' and maize, oil seeds and fruit mangoes.

Kabilasha is a village development committee in Saptari District in the Sagrmatha zone of south-eastern Nepal. At the time of the 1991 Nepal census it had a population of 2884 people living in 571 individual households. It is

election region no. 4 and ellaka no 13. This villages distance from headquarter Rajbiraj is 8 km. (Saptari District Profile, 2004).

4.2 Climate

During the summer season the temperature is measured $46.11^0(115^0f)$, while in the winter is 7.22^0c (Mechi to Mahakali, 2031, p. 813) which is subtropical type of climate Annual rainfall has recorded 1588.9mm to 2096.3mm. (Ibid, 2058:814).

4.3 Natural Resources

Land, forest and water are the main natural resources of Saptari district. Most people depend on agriculture, so land is most exploited and utilized natural resources. Land is used for survival activities. According to District agriculture office Saptari district occupied, 36,220 hector of land. Only 79519 hector of land is able for cultivation. (Saptari District Profile, 2004)

Forest is the sources of provide 3f like as fuel, food, fodder. And medicinal plant and grazing land for cattle. 51934 hector lands is coverage by forest in this district. Kosi wild life reservation is east part of the country. Herbs are Satawri, Tejpat ko bokra, padmpal, herro, Barro, Rittha. And wild animals as like Beer, deer, badel, Donkey, Monkey, Arna, cow, buffalo, pig, goat, duck, hen, pick cock, parrot, pigeon, maina, garud.Important rain -forest plants and herbs are found in this forest. Sal(Shorea Robusta), Satisal (Dalbergia Latifolia), Khair, Karma, Asana, Simal, Sisho, Mango, Badharv, Lichi, Nim (Azadirachta Indica), Taki, Tik, Kaino, Kadam, Sisir, Jamun, Kadam, Pipal (Ficus Religosa), Thakal ko Pat, Bidi ko Pat, Bhorla ko Pat. (Saptari District Profile, 2063).

4.4 Ponds and River

In the Saptari district there is small and large size of 2332 ponds. No of 1595 is private and 1595 are public, and special Dah is Lohjara, Kajra, and Gadhi. Major river are in this Koshi, Triyuga, Sundri, Khado, Mahuli, Balan, Bihul, Sadak, Chahak, Mutni, Kosi and Triyuga is ever green river.

4.5 Settlement and Housing

Tharu have settled in southern and northern part of Mahendra high-way of Saptari district. They have settled in a group compact agglomerated i.e., more than a family has settled in one village. Usually *Tharu* houses are made of wood and thatches. Rich *Tharu*s construct permanent houses, which are made of bricks and stone as well many *Tharu*s kings, name Descendants of king Dangisaran, king Suddhodhan, king Ashoka and so on had huge Royal palaces. Now we are discussion about normal houses of *Tharu*. Based on structure and uses of houses, Dahit, (2062 B.S.: 156-163) has listed 12 types houses, which are prepared and use by *Tharu* for different purpose. Each of the houses has separated design and uses Normal houses, which is also known as residential houses, has unique design. This type of houses is made extending south to north and east to west with two entries/exist doors and windows as per need. Such room contain bed room (middle part and both sides), deities room (north-east side), kitchen room (north-east side) and outer big room (south part). The size of house depends upon number of family members, bigger is the size of house and vice versa, generally, residential houses are commodious and large because of joint family system. Such houses are cool and ventilate during summer season and warm during winter season. Other types of house are made up around the residential house, which provide security and decoration as well.

The houses of within one village are made in cluster area or integrated nearby one after another in inner settlements having road access.

Nowadays, many *Tharu* villages have changed their previous structures, lost their typical identity. Wooden houses are replaced by modern super structured houses with different models which are made of brick, cement and steel rods etc. The surrounding houses are also decreased because of occupation and/or shrinkage of land holding. If a person, who comes in same village after long gap, cannot be imagine about present structure. (Dahit, 2009)

In India, *Tharu* village, according to Mr. Knowledge (Loc.cit.211) are from one to two miles distance from each other, and the houses are all made of wood or grass. The outside grass walls of each house are plastered over with red mud.

 Tharu are enjoying with their traditional settlement globalization effect their concept although thru community people are staying traditional houses. Tharu houses are made by bamboo plate, mud, rice husks, woods, and grasses. Like hut.

CHAPTER V

DATA PRESENTTION AND ANNALYSIS

This chapter is aimed to display and evaluated the collected data regarding the objectives. Socioeconomic characteristics of the study area and the *Tharu* community, documentation and interpretation of the *Tharu* indigenous technologies is presented and explained in this chapter.

5.1 Socio-Economic Status of the Study Area

5.1.1 Demographic Distribution of *Tharu* in the Study Area

Demographic composition of an area determines the cultural patterns to adapt with the environment. The total population of Saptari district is 570282. Among them, 291409 are male and 5, 70,282 are females. The total population of *Tharu* people is 73161 including male 36506 and female 36655. (CBS, 2001)

According to local NGO$_s$ and VDC profile(2009), the total *Tharu* population of study area is 911 among them female are 52% and male are 48% and 185 household are individual.

Table 5.1 Demographic Distribution of *Tharu* Community

Population	Female	Male
911	474	437
Total house hold	185	
Average house hold size	4.92	
Literacy rate	90.68%	

Sources: VDC profile, 2009.

From this table, total *Tharu* populations were 911, male 474 and female 437 in 185 household. Comparison of female are high than male population. Total house hold 185. Tharu average house hold is 4.92. Literacy rate was 90.68 percent. Most of them were study in primary level education.

Table 5.2 Sex Wise Distribution of Population of the Sampled HH

Category	Population	Percentage
Female	146	49.32
Male	150	50.67
Total	296	100

Source: Field Survey, 2011.

The total sampled households were 50 and there were altogether 296 individuals within those households. Among the total sampled population of male were found high. But before two years female population was high, Because of literacy, girls are migrated by marriage system and abortion. Use of Indigenous technology rural female are higher.

5.1.2 Age and Sex Composition of the Respondents

Table 5.3 Ages and Sex Composition of the Respondents

S.N.	Age Group (years)	Female(%)0	Male (%)	Total
1	16 - 20	3 (6%)	-	3 (6%)
2	21 - 40	16 (32%)	9 (18%)	25 (50%)
3	41 - 60	8 (16%)	11(22%)	19 (38%)
4	61 - <	1 (2%)	2 (4%)	3 (6%)
Total	50	23 (56%)	22 (44%)	50 (100%)

Source: Field Survey, 2011.

From the field survey, it was found out that the female population of the 21 to 40 years of age group was high than any other age group of the male population and also the combined male and female population of the same age group was found to be higher than any other age groups.

5.1.3 Size of Family

Tharu are enjoying with joint family. They has been live in joint family but modern age and cause weakness of joint family they still stay in separate family. Joint family member are used indigenous technology is high.

Table 5.4 Size of Family

Types of Family	Respondent (HH)	Percentage
Joint Family	33	66
Separate Family	17	34
Total	50	100

Source: Field Survey, 2011.

From the field data joint family are higher than separate family. From 50 household 66 percentage family are stay in joint family and 34 percentage separate family. Joint family member are use indigenous technology more than separate family. Mostly, separate family member are using modern technology.

fig 1 Educational Status of the Respondents

Source: Field Survey, 2011.

The percentage of literacy was found to be high among the sample population of the study area. Among the literacy respondent, there were high numbers of respondents who had attempted the primary level of education, and they are using Pati.

Table 5.5 Classification of Educational Level (Literacy Rate)

Education Level (Class)	Population	Percentage
1-5	350	38.42
6-7	248	27.22
8-10	153	16.79
10+2	75	8.23
Illiterate	85	9.33
Total	911	100

Source: VDC profile, 2009.

From the secondary data primary education is 38.442 percentages, lower secondary 27.22 percentages, secondary level percentage is 16.79, and higher secondary level is 9.33 percent, primary level student are using *Tharu* indigenous technology. For example hand black board.

Table 5.6 Education Status of the Respondents (HH)

Education level	Population	Percentage
Primary	34	11.48
Lower Secondary	37	12.5
Secondary	15	5.07
SLC	35	11.82
Higher Education	31	10.47
Illiterate	40	13.51
Literate	18	6.08
Others	86	29.05
Total	296	100

Source: Field Survey, 2011.

From field Survey, it was found out that only 13.51 percentages of people are illiterate, literate means generally who are signatures or write their name and other means that are child, old age or suffering from diseases like a paralyzed or handicap.

5.1.4 Occupational Status of the Sample Respondent

Most of the respondent's main occupation had agriculture. Tharu are involved in traditional agriculture system. Mostly they utilize traditional technology because IT is made by local resources and easily accessible and available in local area. Other occupation is wage labor, foreign labor. In Nepal there is no

high label of employment opportunity. There is increase load shedding day by day. Factories are closed that's why foreign labor is main attraction of the people. Some percentage of people is government and non-governmental job holder and some is house wife, other is businessman.

Fig 2 Occupation of the Sampled Respondents

Source: Field Survey, 2011.

From the field survey we find out in this figure people are highly engage in traditional agriculture like 49 percent. They are using indigenous technology like hal, palo. Then secondly they engaged in labor like 17 percent. They are use IT. Unemployed or housewife are 11 percentages, whom are use IT in daily life. Job holder are 15 percentage, student 2 percentage, business man 2 percentage, and student are 4 percentage were low level of IT user.

5.1.5 Income Generation through IT of Respondents

From the field survey, it was found out that indigenous technology utilize to daily life. According to present situation indigenous technology are labor based and modern technology are work faster than IT. Local resources are not highly available and accessible. Cause of conflict people are not easily available raw materials. Lack of infrastructures; electricity, road, drinking water, agriculture cannel, and market facility not supported income generation. Globalization and liberalization packet product attract to the local people.

Table 5.7 Income Generation through IT of Respondents

Categories	Respondents (HH)	Percentage (%)
Yes	45	90
No	5	10
Total	50	100

Source: Field Survey, 2011.

From the field survey, it was found out that only 10 percent people are income generated by indigenous technology of Tharu community. Earning money is also in low price.

Fig 3 Income Generation through IT of Respondents

Source: Field Survey, 2011.

From the field survey this figure shows only 10 percent people are earning money by indigenous technology. Local people are using in daily life but it is not sufficient for livelihood, it is supporting in livelihood.

5.1.6 Availability and Accessibility of Resources

From the field survey, it was found out that resources availability and accessibility has not been high. Availability is low and accessibility is medium. Forest resource is far distance from the study area near about 17 kilometer. Only consumer group is more benefited than other local people. River is not evergreen. Whenever the rain, flood comes in river. Only in rainy season water is available in river

Table 5.8 Availability and Accessibility of Resources

S. N.	Categories	High	Medium	Low
1.	Availability	-		-
2.	Accessibility	-		-

 Source: Field Survey, 2011.

From the field survey, we find out that in these area resources available and accessible is medium. Sources are decrease day by day. Its promotion and protection is not cared by local government. Deforestation increase rapidly. So sources distance also increases day by day.

5.2 Indigenous Technology of *Tharu* Community

There were different indigenous technologies of the *Tharu* community in the study area. For the study, 60 technologies were recorded from the respondents. These technologies were specially used for household work and little bit in

commercial purpose. These technologies ranged from household products to food item, etc.

Table 5.9 Identification of *Tharu* IT by Respondents (HH)

S.N.	Name of Technology	Generating Income (%)
1	**Forest and agricultural technology** : Salti Har, Datai, Pitna, Durmus, Bull Cart, Pati, Chauki, Palo, Barhi, Jabi, Teki, Juwa, Kharajori, Barha, Deki, Daun Garne.	**19.5**
2	**Fishing Device**: Tona, Tapi, Daf, Tiyear, Tapa, Koina, Dhasa, Thotri, Chachha, chonga, Bansi, Tappy, Hoka, khauki, Dimair.	**7.8**
3	**Clay Production** : Kothi, Borais, Tama, Stove, Chhaka, Perwa Khor, Chillam, rack	**3.5**
4	**Weaving and Knighting** : Patiya, Jhala, Birwa, Dali, Dala, Dhama, Sakhari-Bakhari, Dhakiya,	**7.3**
5	**Dying and Printing** : Kobar,	**3.7**
6	**Milk Product**: Ghee, Curd,	**15.8**
7	**Rice Product** : Chura, Bagya, Usina Chamal, Murhi,	**22.8**
8	**Stone product** : Jato, Silauta	**10.2**
9	**Wooden Product** : Dheki, Ukhari, Chalmusra, Khalmusra, Box,	**6.7**
10	**Other product**	**2.7**
	Total	**100**

Source: Field Survey, 2011.

These technologies have been found in the field survey. These technologies were very friendly in *Tharu* community. These technologies were identified by local people. They use these technologies in their daily house hold and other activities.

Table 5.10 Users of Indigenous Technologies of the Respondents

S.N.	Name of the Technology	No. of User (HH)	No of HH, sell in market
1	*Dhasa*	15	5
2	*Thotri*	10	3
3	*Khauli*	20	-
4	*Pitna*	42	-
5	*Pati (Hand Black Board)*	5	2
6	*Seak*	45	10
7	*Kothi*	50	-
8	*Borais*	30	-
9	*Rack*	5	-
10	*Tama*	45	5
11	*Perwa Khor (Pigeon House)*	30	-
12	*Chaka*	30	-
13	*Chulo (Stove) Making*	50	-
14	*Patiya Making (Mat making)*	10	8
15	*Birwa*	40	-
16	*Dali*	42	15
17	*Dala*	35	10
18	*Sakhri-bakhari*	20	2
19	*Chura (Beaten Rice)*	15	10

| 20 | *Usina Chamal Making (Boiled Rice)* | 35 | 30 |
| 21 | *Bagya (food item made by rice flour)* | 40 | - |

Source: Field Survey, 2011.

From this field survey, where identified different technologies. Twenty first technologies are described in detail with methodology, application and market analysis. These are followings:

2.2.1 Dhasa:

Equipment   :   *Knife, Rope/wire*

Raw Materials   :   *Bamboo/Thin Jute, Water*

Methodology:

Dhasa is one of the fishing devices among many more fishing devices. It is made by thin jute stick or bamboo trunk which is cut into small stick and it is joined in bottom of the stem. It is webbing all sticks with thread of spicily jute rope or wire. It mouth is round and wide shape comparison of tail. Tail is narrow shape But it shape is rectangle also *Dhasa* is made up. It is ready to use.

Application of the Devices:

In rainy season or where water is flowing people used to catching fish. It save time because it is put it in the flow of water cutting dam as the shape of the mouth of *Dhasa* using one or two sharp stick in two side called jibya. It is use every time but spicily early morning and evening is suitable to trapped fish. It is catch or trapped all types of fish smaller and bigger.

Market Analysis: Dhasa's market value is very low. It is made in particular area. So, it can be protect in domestic market.

Dhasa

5.2.2 *Thotri*

Equipment   :   *Knife, Rope/wire*

Raw Materials   :   *Bamboo/Thin Jute, Water*

Methodology:

Thotri is also a fishing device. It is like a *Dhasa.* There are lot of similarities between *Dhasa* and *Thotri.* Only shape is quite different between them. *Thotri* mouth is in rectangle shape and bottom of the shape is tie. It is also made like web.

Application of the Devices:

It is also apply like a *Dhasa*. But *Thotri* is put out it against the flow of water in the hole. It is use in evening and takes it out in the morning. It is trapped only small size of fish. Its shape is smaller than *Dasha.*

Market analysis: *Dhasa's* market value is very low. It is made in particular area. So, it can be protect in domestic market and local government. It should be organized skill development training.

Thotri

5.2.3 Khauli

Equipment   :   *Knife, Rope/wire, net2 miter*

Raw Materials   :   *Bamboo stick/plate*

Methodology:

It is also a fishing device. It is made by bamboo stick. It made in semi-circle and then it bind with net by thread. It is ready to use.

Application of the Devices:

It is use for catching fishing. It is use in pond, flowing water river, lake. Fisher man used and trapped fishes.

Market Analysis:

Its market value is very low but it is found in local market easily. Its promotion and protection through local market is necessary. It user are very high in tharu community.
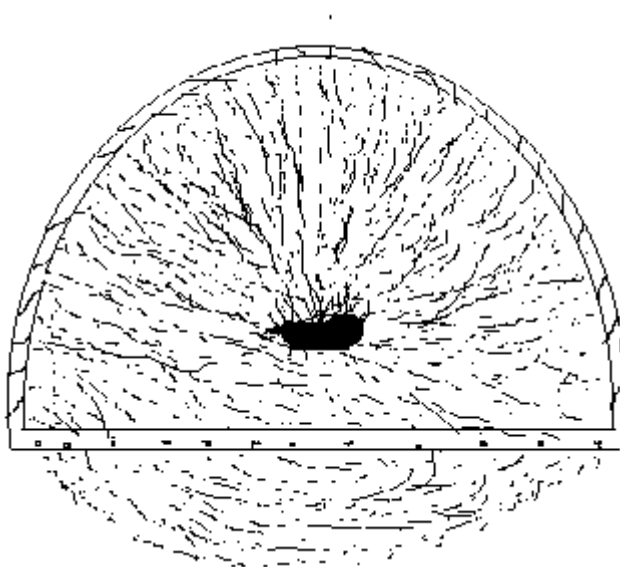
Khauki

5.2.4 *Pitna*

Equipment   **:**   *Knife,*

Raw Materials   :   *Bamboo, wood*

Methodology:

Pitna is made by wood or bamboo. At first chopped raw material in 3' feet. And give it shape. If it is made by bamboo round and wood in rectangle shape. In hand catching place made stick in round. It is easily catching for using. It is made up.

Application of the Devices:

Pitna is used for washing cloths and agriculture vegetable farm. It is used to mixture clay, small size of clay. It helps to made *kiyari* easily.

Market Analysis:

Market value of the Significance of the *Pitna* technology is null. It's highly used in our daily life but it is not available in local market. Its possibility is very high.

Pitna

5.1.5 Pati (Hand Black Board)

Equipment : *Knife,*

Raw Materials : 12" *242" *wood (pataha)*

Methodology:

Pati is a made like *Pitna* but its shape is 12' * 24' rectangle. It's both side is made clean. It is made in shape in *silate*. Another word we can say that it is small black board hand black board.

Application of the Devices:

It is educational devices. Small school going children or pre-primary school going children is used to learn. It is painted by black clay and writes with white clay or white chalk.

Market Analysis:

Pati is available in domestically it is not available in market. Its level of significance is low but it is made by order. If it should be change in its shape and size. Its market is possible.

Pati

5.1.6 Seak

Equipment   **:**   *Knife, Nib,*

Raw Materials   :   *Jute Threat*

Methodology:

Seak is made by jute threat. It is made like a spider web through nib. It is making like a bag. It's top bind all in one place. It is made up.

Application of the Devices:

Seak is utilized in hanging something like milk, curd, pickle, and other things. It is easy to use. It is protected things from cat and child.

Market Analysis:

Seak has been highly using in *Tharu* community. It's in very low price. Its promotion and protection is possible through advertisement, demonstration.

Seak

5.1.7 Kothi

Equipments : *Pitna, Bucket, Glass, Spade.*

 Raw Materials : *Rice Hunks, Water, Clay, Bamboo, and Goober.*

Methodology:

The *kothi* is made from a mixture of clay or mud help of *pitna*, goober & rice husk (three parts, one part rice hunks and half parts of goober) firstly, the *kothi* is made; the bamboo plate on the ground and thick the layer2"-3"of the clay mixture spread across the top. *Kothi* is made according to necessities and need. *Kothi* is different shape and size. It is left in the sun until it is nearly dry. The side of container is built up, using the same fresh clay mixture. Bottom of the font side make a hole in circle shape. It helps to use easily. This is done by adding a little at a time; as one layer became dry. This process is continued until we fulfill our desire/need. Only big size of *Kothi* is made by two parts. Cover is also made like a base. After dry it made up.

Application: *Koti* is very important thing for store of rice, wheat, or non-perishable food. It is protected grain and cereals from mice and other insect. And also utilize like a table.

Market Analysis: It market value is null. It is disappearing day by day so its promotion and protection is very important through awareness, and training.

Preparing Koti

5.1.8 Borais

Equipment   :   *Pitna, Bucket*

Row Material   :   *Clay, Rice Husks and Water*

Methodology:

Borais is made by mixture of clay/mud, rice hunks. It is small size. It is made like *Kothi* but size and utilization is different.

Application:

It specially used in winter season. It is used like heater. It is used for heating and warming body.

Market Analysis:

Its market values level of significace is null. Its promotion and protection is nessessary. It must be advertise by local FM or mediya.

Borais

5.1.9 Rack

Equipment   :   *Bucket, Pitna,*

Raw materials   :   *Mud, Bamboo Stick, Wheat/Rice Husks, Water*

Methodology:

Rack is made by mixture of mud, wheat/rice husks, and water. Just like a modern rack but it is a made like a *Kothi* styles. We made it according to our need and necessities.

Application:

Rack is utilized in daily life. It used to bring books other thing safety.

Market value:

Its level of significance is null. Its promotion and protection is very difficult. Although its market is possible in domestically in local places.

Rack

5.1.10 Tamma

Equipment   :   *Knife, Axe, Rukan, Baisla.*

Raw Materials   :   *Wood*

Methodology:

Tama is one type of measurement. We measure rice. It is half kg or one kg pot. It is made by wood or *rari* grass. Wood is cutting in shape of jug.

Application:

Tama is used for measuring rice, cereals.

Market Analysis:

Its market value is very low. It is available in fair, in demonstration. It promotion and protection is very important through awarding and training local people. Domestic markets role is also very important. For buying, selling this products.

Tamma

5.2.11 Perwa Khor/ Pigeon House

Equipment   :   *Knife, Axe, Pitna.*

Raw Materials   :   *Rice Husks, Clay, Bamboo Plate, Water*

Methodology:

Pigeon house is called in *Tharu* language *Perwa Khor*. It is made by clay, rice husks, water and bamboo. Three part clay and one part rice husks. And bamboo is used in base because it works like a skeleton. It made like a *Kothi*. In this house made nest types of hoses. Pigeon are stay in pair. So, one pair lives in one house.

Application:

Pigeon are domestic/pet bird and its meat is very testy and energetic. In tharu community is a special meat. Pigeon house protected pigeon from cat, dog, crow, and outer environment like wind and cloud.

Market Analysis:

Pigeon house market value is null. Market can explore domestically. It making skill and training is necessary.

Pigeon House

5.2.12 Chaka

Equipment : *Wire*

Raw Materials : *Rice Husks, Clay, Bamboo Plate/* Stick*, Water*

Methodology:

Chaka is made by moisture of clay, husks rice. It is made in wall. Like a rack.

Application:

It is used for protecting thing from child, dog, where we take it to matches, and pesticides. It is used in kitchen room bring to lantern.

Market Analysis:

It level of significance is very null. Its promotion and protection can be possible through awareness.

Chaka

5.2.13 Chulo (stove) Making

Equipment : *Bucket, Knife, Pasni, Pitna Brick.*

Raw Materials : *Rice Husks, Clay, Bamboo Plate, Water*

Methodology:

Stove is called in *Tharu* language *Chuel*. It is made by the mixture of clay, water, thistles (bhushi)/ rice hocks. First of all hole is made as we need to make the size of *Chuel*. Mud is stitch to its wall. Then bricks are shaped in rectangular or in oval shaped with mud. Mud is added to the top of the construction from one wall to other. That is called *thohng (in Tharu language)*. One oval shaped hole is made in the wall of *Chuel* in the centre of walls through which the firewood or fuel is added.

Application:

Chuel is main instrument to fire fuel wood or where we are cook food or other thing related to cooking. *Chuel* is a save fuel comparison of open stove or stony stove.

Market Analysis**:** Its market value is null. Change in its shape and size is very important. Training and advertisement is very important.

Genetal chulo   *preparing chulo*

5.2.14 Patiya Making (Mat making)

Equipments : *Local loom of mat making, Drop spindle*

Raw Materials : *Pater/Khara Jori (types of thread made by wild grass), Sutri*

Methodology:

The drop of spindle "pater" is used to spin the jute into sutri/thread. The loom is set up between two pillars at the font home where there is sufficient light, and is fixed to the ground by means of two nails on either side. The correct height is measured by means of rope 'jokha'. Then the process of webbing the mat on the set loom is started.

Application:

It is used in daily life. Patiya/Mat is used in bed like support of beddings, in room used like carpet. It is warm like jhalan.

Market Analysis:

Its market value is medium. It is available in local market.

Preparing Patiya

5.2.15 Birwa

Equipment   :   *Knife, Nib*

Raw materials   :   *Hey, Different types of cloths, Thread, Cloths*

Methodology

Birwa is made by rice hey. It is rolling by hand and folds tightly. It is simple types of Birwa but it made by cloths also that looks like attractive and more durable. At first cloths are cutting long size then it is made like circle and folds it four or five times. Then help of nib and thread it is stitching. It is decorated in different stitches. Like fly stitch, pearl, chain, stitches. Then it is ready to use.

Application:

Birwa is used in daily life. It is utilize in top of the head for load control. Safety of the head. It is also utilize like handicraft. Specify it is used in *Dala, Dali, Dhama, Dhamni, Dakya.*

Market Analysis:

Its level of significance is null. But its possibility is very high in domestic and international market. As a handicraft, or package gift.
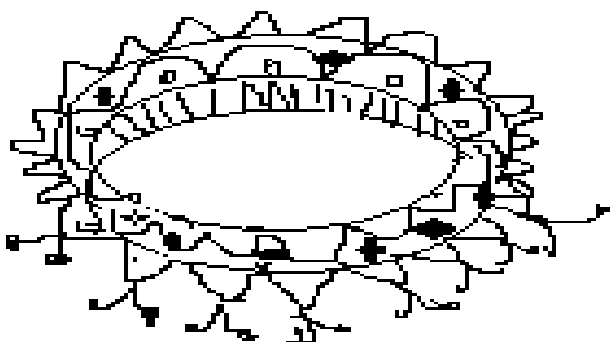
Birwa

5.2.16 Dali

Equipment   :   *Nib*

Raw materials   :   R*ari type of long grass/mujy/wool, Water,*
                                              Different types of colors

Methodology:

Dali is very important equipment of *Tharu* community. It is utilizing *Tharus* daily life for protect different type of row materials like a rice potatoes, and so on. Dali is made by *Rari*. It is made by hard *rari* and mid part of *rari*. At first 5-7 hard witty *rari* are selected then cover it by mid part of *rari* through nipple. Whole made by nipple and *rari* covered by mid part this process it being doing. *Rari* are colored by interest.

Application:

Dali is used in on various holy and auspicious occasion and social feats such as wedding. And it is used in daily life like *Dala.*

Market Analysis: Its market value is low. Local market, fair, demonstration, is necessary to protection and promotion.

Decorated Dali   **Simple Dali**

5.2.17 Dala

Equipment   :   *Nib*

Raw materials   :   R*ari type of long grass/mujy/wool, Water,*
                                            Different types of colors

Methodology:

It is also like *Dali*. It is bigger than Dali.

 Application:

It is used like *Dali* Agriculture raw material are putting for safety.

 Market Analysis: Its market value is low. Local market, fair, demonstration, is necessary to protection and promotion.

 Weaving Dala

5.2.18 Sakhri-Bakhari

Equipment   :   *Nib*

Raw Materials   :   *Mujai, rari types of a long size of grass*

Methodology:

It is made like a *Dala*, Dali. Only shape is different from them. One is like *dala* it is covered by *birko*. Then it is shape is like pagoda *shaili* temple.

Application

It is used like briefcase to bring cloths, or other thing.

Market Analysis: Its market value is low. Local market, fair, demonstration, is necessary to protection and promotion.

Sakari Bakhari

5.2.19 Chura (Beaten Rice)

Equipment : *Chuel (Stove), Handi (Earthen Pots), Pakrna (Hand Potter), Supa (WinnowingTray), Dakya (Bamboo Container), Deki/Musra and Okhal, Karahi* (earthen pot*), larna*

Raw Materials : *Rice (paddy), Fuel, Water,*

Methodology:

Chura is made by two types one is *arua* and anothe is *usina*. Rice paddy socked in water 10-12 hours. Paddy is taken in a *handi* along with a request amount of water heated over an open over. When simmering action starts it is poured out in a clean surface and let to cool and drain out. The shocked paddy is taken in conical bamboo container and further drained. The drained paddy is roasted in an earthen pot until it started popping up. It is put into an *okhal* or *deki* and is pounded till flat. Pounding and string are carried out simultaneously. Thus prepared, the *Chura* is scooped from the mortar by and transferred to the winning tray. Chaff and powdery portion are winnowed out. Grains of beaten rice are thus obtained.

Application:

Chura is used on various holy and auspicious occasion and social feasts such as wedding. It is very popular dry food. In *Tharu* community people are used it mainly with curd and sugar or salt. We eat *chura* with salt, onion or other types of salad. We made different dishes by *Chura* like *chura* fry. It is not last for long time. It keeps in dry places.

Market Analysis: Its market value is low. Local market, fair, demonstration, is necessary to protection and promotion. It is easily available in local market.

Preparing Chura

5.2.20 Usina Chamal Making (Boiled Rice)

Equipment : *Chuel (Stove), Handi (Earthen Pots/ the Stirrer), Pakrna (Hand Potter), Supa/Nanglo (Winnowing Tray), Dakya (Bamboo Container)*

Raw Materials : *Rice (paddy), Fuel, Water,*

Methodology:

Rice paddy socked in water 24 hours. Paddy is taken in a *handi* along with a request amount of water heated over an open over. It is boiled until it soft. The rice is placed in a cement floor or in mat. It placed according to sunshine in the sun to dry for two or three days. It is ready to beaten rice. We send it rice mill for beaten rice. Then it winnowed out.

Application:

According to health perspective this rice is better than *arwua* rice because in this rice thiamin and B complex are safe. *Tharu* are enjoying eating this food. Boiled rice, half boiled rice, *bhuja* is main dishes' made by *Usina Chamal. Tharu* women are serving it with *dal*, mix vegetable, *ghonhi*.

Market Analysis: This can be brought into market by different various as ways as advertisement of this product with the detail of their comparison Local market, fair, demonstration, it can be distributed free sample. It can preserve by local government policy.

Boiling Rice

5.2.21 *Bagya* (food item made by rice flour)

Equipment   :   *Chuel (Stove), Bagya making patli/pot,*
handi, Pakrna (Hand Potter), Supa/Nanglo,
Daliya, chamcha,

Raw Materials   :   *Rice (paddy), Fuel, Water,*

Methodology:

Flour is mixture by hot water and makes it in small *Bagya* shape. Warm water in *handi* and *handi* is covered by *Bagya* making pot. Then we take *Bagya* in this pot and cover. After an hour it is ready to serve.

Application:

Bagya is made in different size and shape. It is made in spicily winter season, last December and January. It is best food item of the *Tharu* community.

Market Analysis:

This can be brought into market by different various as ways as advertisement of this product with the help of media with the detail of their comparison. Local market, fair, demonstration and so on. It can be distributed free sample at is product of them. So each and every hotel of *Tharu* community should be available in hotel. It can be pressured through governmental policy.

Bagya

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATION

Indigenous technology of *Tharu* community's different types of technology is finding. From the study following summary conclusion and recommendations have been drawn.

6.1 Summary

Nepal is small and beautiful country. Nepal is less developing country and landlocked country with great diversity. Diversity is characteristics of Nepal like geographical, cultural, social, climate, ethnical, traditional. We can also get multi-culture, multi-cast, multi-religious, and multi-traditional society and they have their own survival. They are using their own traditional or indigenous knowledge, skill and technologies. Technology is depends upon place, time, and situation.

Traditional technologies can be appropriate for our country. These technologies are using the local resources, local people's knowledge, skill and practices. So we can adopt and use these technologies. If we protect these technologies, we can get mainly three advantages: optimum utilization of local recourses by local people, its create employment opportunities and environment friendly. But over lapping of modern technology traditional technology is in shadow. Traditional technology is specially used in house hold work. It is decreased day by day. There is great opportunity to earn money through local production by traditional technology. They create their own employment and income. It is best practice to utilize our natural resources and human resources. If we utilize our resource we became economically strong then people invest their money in different sector like social, infrastructural. Local people are benefited by traditional technology it is Positive change in rural sector.

Agriculture is main occupation of *Tharu* community. *Tharu* people are utilization of all agro products and its west products with the use of their different types of technologies. Among different agriculture products, they have close association with rice or paddy and thus, preparing different food items from it such as *Chura, Murhi, Vuja, Bagiya, lie, Telpor Roti,* and fermentation food like *Birya, Kumrauri, Murauri, Fulauri, Adauri, Sukhauti* so on.

Fishing devices *Dasa, Thotri, khauki* help to catch fishing, Rack is utilized for books or in kitchen room, *Kothi* is storage food grains, *Boriash* is utilized for heatting and warming room and body like ward heater, *Shieck* is used for hanging thing, *Hand Black Board* is education instrument, *Dama,Damni, Dala, Dali, Sakhari Bakhari* used for keeping cloths, grain or other things. *Mat* is utilized like carpet. Food item are main recipes of this community *Bagya. Usina chamal* and *Chura* is also best item.

From the total sampled households of 50, there were altogether 296 members, or individual households. Among the total sampled population the proportion of female was found to be high. From the field survey, it was found out that the female population of the 20 to 40 years of the age group of the male population and also the combined male and female population of the same age group. The percentage of illiteracy rate was found to be high among the sample population of the study area. Among the respondents, there was high number of respondents who had the primary level of education. Most of the respondents had involved in agriculture occupation. The other major occupation taken by the respondents was wage labor, and job holder. They were found to use different indigenous technologies for both household as well as commercial purpose.

Tharu's houses have different characteristics than those of the other communities residing in the area. All the building or formational materials like mud/soil, dung, rice husk, wood, bamboo bars, water, or jute threat, pin, and use local resource which has been easily available in local area.

6.2 Conclusion

The present research has been explained 21 (*Dasa, Thotri, Khauki, Pitna, Pati, Seak, Kothi, Borrais, Rack, Tama, Perwa Khor (Pigeon House), Chaka, Chulo (Stove) Making, Patiya Making (Mat making), Birwa, Dali, Dala, Sakhri-bakhari, Chura (Beaten Rice), Usina Chamal Making (Boiled Rice), Bagya (food item made by rice flour)* indigenous technology out of 60.

Local resources are used for the indigenous technology which is easily available and accessible in rural area.

Tharu community is not used to get highly income generating by using indigenous technology, but some people, however depend on it for their livelihood. It is used in household work too.

6.2 Recommendation

This study shows that there were many indigenous technologies in *Tharu* community. Mainly used these technologies in household purposes and some for commercial use. Through indigenous technology employment opportunity would high in *Tharu* community. *Tharu* communities people are utilize leisure time. *Tharu* women and men both are hard worker and laborious but they are free in off- farm season so utilization of these time period *Tharu* are utilizes their time and increase economic status.

Tharu indigenous technologies are socio-eco-culture friendly. Every technology depends upon time, place and situation. According to them it wants to need improvement. This technology is our property because it is transform generation to generation from long time period. *Tharu* indigenous technologies are endangered situation. It were decreasing, disappearing, and being replaced by the modern technology. So, to preserve and promotion of these technologies is following recommendations can be made to improve:

⟩ Create awareness level of *Tharu* community about indigenous technology.

⟩ Create promotion and training about indigenous technology.

⟩ Implementation of the projects and program are highly depending on local resources. Or resources are utilized optimum level.

⟩ Local government should protect the local indigenous organic product to find market value of it.

⟩ Indigenous technology can be protected through demonstration, advertisement of media to protecting the technology.

⟩ Increase and inspired to use indigenous technology by financial support through micro finance, cooperatives and Banks.

⟩ Indigenous technology should be change into appropriate technology, it is necessary to modification and transformation.

⟩ Improvement of Tourism also supports indigenous technology. So governmental and nongovernmental plan and policies should be designed in favors of indigenous technology. Agro-tourism, village tourisms concept.

⟩ *Tharu* indigenous technology must be register in intellectual property right.

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ANNEX-1

Tribhuvan University

Central Department of Rural Development

Indigenous Technology of *Tharu* Community

(A Case Study of Kabilasha VDC of Saptari, District)

Check List

1 Location name   : (settlement/ relief features)

2 Individual details:

  a.) district: ... ...   b.) VDC: ... ...   c.) ward no :   ... ...

  d.) village/ tole: ... ... e.) name : ... ... f.) age   :   ... ...

  g.) sex   : ... ...   h.) education : ... ...   i.) occupation: ... ...

  j.) date :... ... ...   k.) position : ... ... l.) checked by: ... ...

3 purpose to visit: ...   .

4 Indigenous technology   name :   ...   . Types

5 Use of indigenous technology ...   .

6 what are the sources of *Tharu* Indigenous technology: ...   .

7 Is it easy to use or not?   a.) easy   b.) hard

8 local people benefited from this technology? a.) Yes   b.) No

9 It is social, economic and environment friendly?   a.) yes   b.) No

    If yes, ...

    If No, ...

10. Prospects of indigenous technology...   ...   .

11 Sources of investment   a) bank   b) own   c) any   d) lender

12 Problems (properly use availability and accessibility)   ...   .

Tribhuvan University

Central Department of Rural Development

Indigenous Technology of *Tharu* Community

(A Case Study of Kabilasha VDC of Saptari, District)

(KEY INFORMANT INTERVIEW GUIDELINE)

1. Back Ground Information

a.) district: ...   .   b.) VDC: ...   .   c.) ward no :   ...   .

d.) village/ tole: ...   . e.) name : ...   . f.) age   :   ...   .

g.) sex   : ...   .   h.) education : ...   . i.) occupation: ...   .

j.) date   :...   ...   ...   k.) position   :   ...   . l.) checked by: ...   .

2. Education

a.) What is the literacy status of local people of this VDC/municipality?

   Literacy rate...........?

b.) What is the literacy status of women of this VDC? Literacy...................?

c.) Do ethnic minorities (*Tharu*) of this VDC normally send their children to school as other   1. Yes   2. No

   a. if yes/no, why 1........................... 2...........................

d.) School going children are using *Tharu* indigenous technology in study?

   1. Yes   2. No

   If yes, why...

3. Health

a.) what are the prevalent diseases and this common trivalent production   in your VDC?

b.) *Tharu* traditional technology helps to collecting medicinal plant?

4) Drinking:

a.) Main source of drinking water for the household of the VDC

a.) Piped water b) Hand-pump c) deep tube well d) Dung-well e) others.........

b.) how do you assess the quality of the drinking water?

   1 good   2 average   3 poor

c.) *Tharu* traditional technology used in sources of drinking water.

   a) Yes   b).No

   c.a.) if yes, what ?   1.............   2............

5) Gender:

a) What are the major activities of women of your VDC?

   1...................   2...................3....................

b) Are there culture/social/religious barrier for to work/eastern in certain areas?

   1) Yes   2) No

c) Are there women friendly potential income generating opportunities through *Tharu* indigenous technology in your VDC?

   1. Yes   2. No

   c.1) If yes, what are they?

     1..........................   2.........................   3...........................

d) If yes, what special interest/ capacity to under the certain indigenous enterprise?

   1..............................   2.........................   3...................................

6) Livelihood:

a.) what are the major economic activities of male of female of your VDC policy for the livelihood?
Male   :   1.......................   2.......................   3........................

Female: 1.......................   2.......................   3........................

b.) What percent of household of your VDC is able to produce enough food to meet their family requirement?............................%

   b.1 How the deficit households of your VDC fulfill their food requirement.

1..................... 2.................. 3.....................

b.2) What percentage of households in your VDC is landless?...................%

c) What are the main activities of the landless households for their subsistence?

1........................ 2...................... 3..........................

d) They use *Tharu* indigenous technology to increase the living standard of poor and landless households of your VDC.

1........................ 2...................... 3..........................

e) What are the traditional technology product export and import of your VDC?

Import 1........................ 2.................... 3..........................

Export 1........................ 2.................... 3..........................

f) *Tharu* Indigenous Technology:

A.) Forest and agriculture product s

B.) Oil fats and wax

C.) Fishing Devices...................................

D.) Mechanical Devices

E.) Clay product, and metal wares

F.) Weaving, wool

G.) Dying and printing (wall printing)

H.) Paper, paper productions and ink

g) Fermentation:

a.) Milk production

b.) Rice production

7.) Natural Resources

a.) what are the main natural resources of your VDC?

1........................ 2...................... 3..........................

b.) Who are the main users of the resources?

1........................ 2...................... 3..........................

c) What types of row material used during accessibility status and what availability status of the natures/resources?

Accessibility: 1 accessible   2 average   3 inaccessible

Availability: 1 High   2 average   3 low

d) Do the people of your VDC have conflict with other VDC regarding the use of natural resources?

   1. Yes   2.No

e) If yes, for which resources and why, Resources VDC   causes of conflict

   ....

   ....

8) Culture features

a) if any festival is unique in your VDC?

   1. Yes   2.No

b) In festival use indigenous technology? If yes what

   1............................   2......................   3....................

c) What are changes for promoting and preserving the technologies?

ANNEX-3

Tribhuvan University

Central Department of Rural Development

Indigenous Technology of Tharu Community

(A Case Study of Kabilashsa VDC of Saptari District)

Household Questionnaire

a.) Background information:

a.) district: ... ... b.) vdc : ... ... c.) ward no :   ... ...

d.) village/ tole: ...   . e.) name : ...   . f.) age   : ... ...

g.) sex   : ...   .   h.) education : ... ... i.) occupation: ... ...

j.) date :...   ...   ... k.) position : ...   . l.) checked by: ...   .

b) Family Status:

S.N.	relation of HH head	Sex	Age	Education	Occupation	Training

c) Types of family:

a.) Separate family

b.) Joint family

d.) Information about land

Land ownership	Irrigated land		Unirrigated land		Vegetable farm (bari)		Others	
	Unit	Area	Unit	Area	Unit	Area	Unit	area
Lease land								
Borrow land								
Total								

e) You able to produce enough food to meet your family requirement?

   1. Yes   2.No

f) What is your main source of income?

   1................................   2........................   3...........................

g) Do you use indigenous technology?

   1. Yes   2.No

h) If yes, what types of technology do they use?

   1................................   2........................   3...........................

i) Mainly who involve in this technology?

   1................................   2........................   3...........................

j) Which resource do they use for this technology?

   1................................   2........................   3...........................

k) Are the resource easily available?

   1. Yes   2.No

l) Do you sell production from made by tharu technology?

   1. Yes   2.No

m) Where do you sell this production?

   ....

n) This production income generating or not? If yes,

   ....

o) This technology fulfills your basic need?

   1. Yes   2.No

p) Do you have any suggestions and comments from your side to make this program effective?

   ....
   ....
   ....

q) Any Governmental, non-governmental and community based origination work in   this field? If yes, which are they?
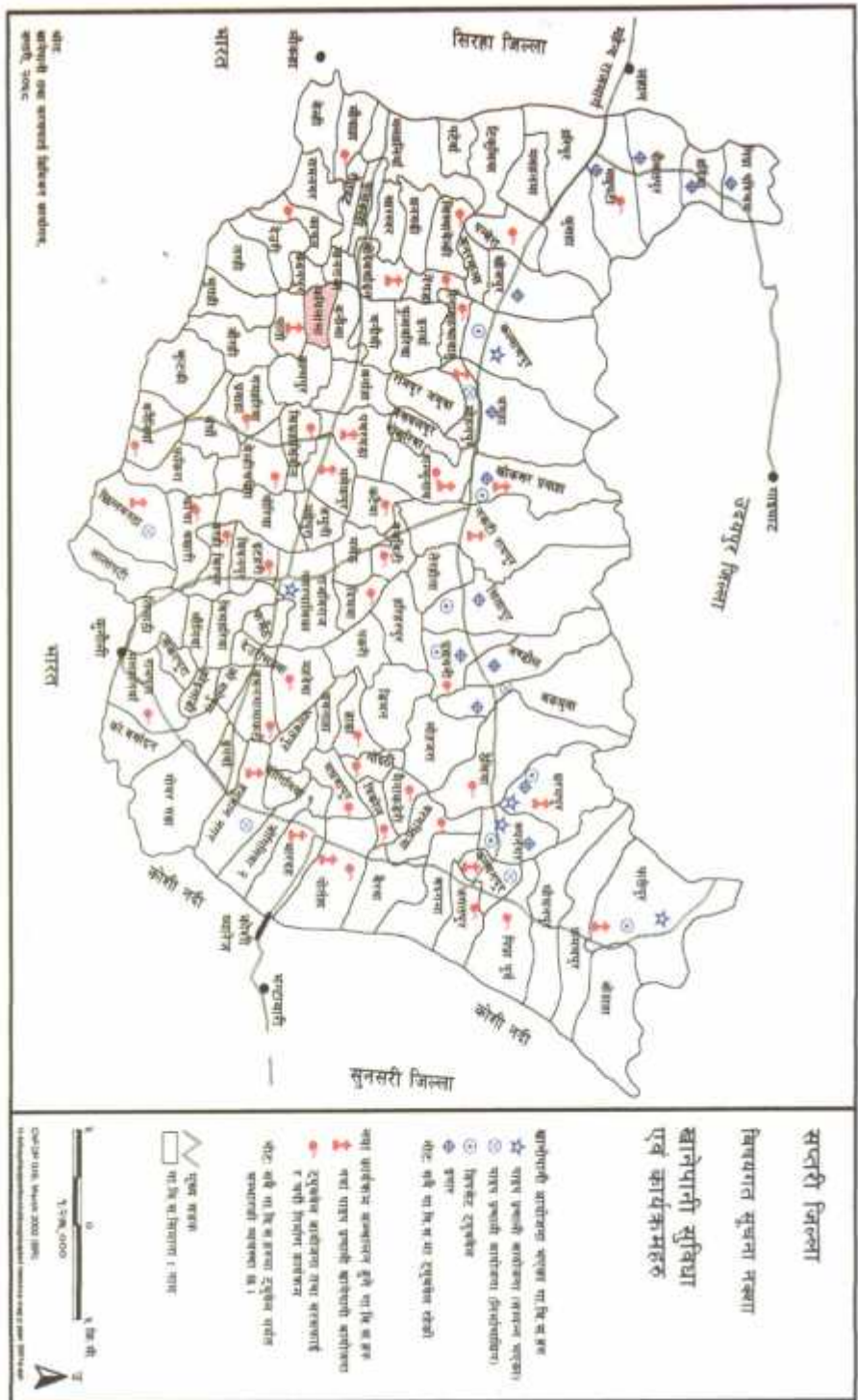
   ....
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PHOTOS

Bull Cart

Tharu House

नक्सा नं. ११